The Chemical Age

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Contents

NOTICES:—All communications relating to editorial matter should be addressed to the Editor, who will be pleased to consider articles or contributions dealing with modern chemical developments or suggestions bearing upon the advancement of the chemical industry in this country. Communications relating to advertisements or general matters should be addressed to the Manager.

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A "Chemical Profession" Act

ALL who have followed the controversy concerning the registration of chemists will be interested in the announcement that by the petition of George Basil, William R. Allen, William C. Lodge, R. F. Ruttan, Harold J. Roast, G. S. Whitby, all of Montreal, and Father Alexander Vachon, of Quebec, a Bill (Assembly No. 87) has been passed to incorporate the Association of Professional Chemists of Quebec. The Act is described as the "Chemical Profession Act." It provides that the title "Professional Chemists" shall be restricted to those registered or temporarily licensed. Regulations under which persons may be registered are laid down, and the Act, for the present, recognises that applications must be considered from those not academically qualified. The Association itself has power to examine candidates and issue certificates of competency. Clause 25 is of such interest that it may be quoted in full:—"Nothing contained in this Act shall be construed as affecting any right or privileges granted to members of the Corporation of Professional Engineers of Quebec, to the holders of diplomas of the Polytechnic School and from the Faculty of Applied Science of McGill University, to the holders of diplomas in pharmacy and medicine and members of these two professions, who may, as in the past, practise chemistry under any name they may choose, provided that they do not take the title of 'Professional Chemist.'" This indicates clearly that no monopoly is intended, and that the only title that is protected is that of "Professional Chemist." The promoters of the Bill have not attempted to prevent physicians and pharmacists who have done so previously, from practising chemistry, but they must not use the title. It is provided that the professional chemist may have a seal, the impression of which shall contain the name of the chemist and the words "Professional Chemist of Quebec." The purpose of the seal is to stamp estimates, specifications, and all documents connected with chemistry.

There are various points of interest in connection with the incorporation of this association. It seems evident that it met with no opposition from other chemical societies, who, on the contrary, are co-operating with it. No objection has been raised by the universities to the Association examining candidates for registration where they consider it necessary, and in fact the movement seems to have sprung from a real desire among the chemists in Quebec to put their affairs in order. Some opposition seems to have come from the pharmacists, but a satisfactory understanding appears to have been arrived at.

A good deal may be learnt from the Quebec movement. The comparatively small number of chemists in the city simplifies the matter in some ways, but without the real co-operation of all members of the profession the Bill could not have been carried through. If there are other and older societies of chemists in Quebec, they appear to be less jealous of their real or supposed rights and more willing to co-operate where a common good is to be won. The fact that the Association is prepared to register, in certain circumstances, persons who are not academically qualified shows that the promoters have a thoroughly practical grasp of the situation.

There is no question whatever that the Bill has been welcomed by the chemists in Quebec, and it seems probable that in the near future the title "Professional Chemist" is one which will be sought by all who wish to practise. It is, of course, for the present only a titular right that is established, but that is the basis on which to build. Persons outside the Association may still continue to practise chemistry, but they will not be allowed to describe themselves as "Professional Chemists." The inevitable tendency will be to give a status to those entitled to use this name, and to place the remainder in an outside and unauthorised position. By degrees the desire for special recognition will tend to bring the bulk of the qualified practising chemists within the new body. That is the usual history of all organisation.

In this country, any movement on the same lines would have to begin by undoing what has already been done. The pharmacists have captured the title

"chemist," and are not too eager to surrender it. They would have first to be appeased or dispossessed. And then would begin the difficult task of inducing the chemists proper to agree among themselves on a practical policy. For the moment all that can be said is that the leaven is at work; the idea of some recognised professional status and corresponding title is becoming familiar. The Quebec experiment, though the circumstances here are widely different, indicates the drift of opinion in other quarters.

Paint and Varnish Research

THE report of Dr. L. A. Jordan, director of the Paint and Varnish Research Association, incorporated in September of last year, records a degree of progress that is distinctly encouraging. The Council decided to erect their laboratories at Teddington, within as easy reach as possible of the National Physical Laboratory, and they have been fortunate in securing a freehold property that meets the needs remarkably well. The purchase was completed on February 24, and the laboratory is already approaching readiness for occupation. There is obviously no lack of subjects awaiting investigation. That of colour standards and colour fading tests is put in the first place. The greatest need, in the judgment of Dr. Jordan, is for the Research Association to review the colorimetric work already done with the instruments available, to correlate the ideas and needs of those interested, and so to help to arrive at some authoritative standard for colorimetric values and colour fading measurements. As soon as the Research Association is in a position to give authoritative decisions on colour comparisons, it will become automatically a colour reference bureau for the industry. Among other problems awaiting treatment are the development of Empire-grown oil seeds, particularly Tung and Perilla, the study of varnishes for electrical installation work, and the investigation of cracking in patent leather. The technical and scientific literature of the industry is already being considered, and it is hoped that in a short time an index will have been sufficiently developed to enable the Association to distribute as well as to collect information and to function as an information bureau. Finally, the subscriptions already guaranteed exceed the minimum required for the initial five-year period. This, it will be agreed, is not at all a bad record for so limited a period, and the Council and director are to be congratulated on the good progress made.

The Future of Fuel Technology

IN effecting a fusion between the Institution of Fuel Technology and the Institution of Fuel Economy Engineers, Sir Alfred Mond has done good service to the cause of fuel technology in this country. This is a field in which are to be expected developments of enormous national importance in the near future, and the concentration of all the interests concerned is obviously much to be desired. Sir Alfred, as the chairman of the National Fuel and Power Committee and as the head of Imperial Chemical Industries, is doubly interested in the future of the fuel industry, and realises the vital part that chemistry, on both its research and its applied sides, must play in keeping this country at least abreast if not in advance of foreign developments. Germany, in its study of processes for the more scientific treatment of coal, and especially in its processes for the synthetic production of oil, has taken the initiative in this as in other matters, and if this country's interests are to be safeguarded in the future it can only be by the most effective combination of our commercial and technological resources. The fact that Sir Alfred Mond has placed himself at the head of this movement is reassuring.

The need of vigorous action on behalf of British interests is emphasised by the announcement that the I.G. Farbenindustrie are installing three new units at Leunawerke. The largest is a plant for the production of oil from coal, which is expected to begin operations on a small scale early this year, commencing with the simple hydrogenation process and later proceeding to the distillation processes. The second plant is for the production of the recently introduced combined fertiliser, Nitrophoska, with an estimated monthly capacity of 10,000 tons. The third is a calcium nitrate plant, also capable of a monthly output of about 10,000 tons. These developments indicate the rapidity with which research of comparatively recent date is already being converted into commercial practice, and the danger that attends any indifference to such developments on the part of this country.

Commercial Ethylene Glycol

WE are indebted to Dr. E. R. Weidlein, Director of the Mellon Institute of Industrial Research, for some interesting notes, published in this issue, on the commercial production of ethylene glycol in the United States. The company responsible for this achievement is the Carbide and Carbon Chemicals Corporation, which for some years has directed research into the isolation of the various constituents of the hydrocarbon resources of the United States and their utilisation in synthetic processes. One of the results of this research is the commercial production, at a reasonable cost, of ethylene glycol, which is being used extensively in explosive manufacture, as an anti-freeze agent for internal combustion engines, as a supplement in many ways to the supplies of glycerol, as a base for the preparation of solvents for the rapidly developing nitro-cellulose lacquer industry, and as a raw material for further synthesis. Although it is stated that there is no intention to compete directly with the glycerol market, and to put it forward as a substitute, the fact that ethylene glycol has so many uses nearly approaching those of glycerol and that the sources from which it is obtained are so large, compared with the oils and fats from which glycerol is obtained, cannot be ignored. Whatever the effect on existing markets for other products, the production, in commercial terms, of ethylene glycol is an achievement of note in which our readers will be interested, though its applications here may be less extensive than in the United States.

Another announcement of importance from the United States is the successful production of synthetic methanol by Lazote, Inc., a recently formed company associated with the du Pont organisation. As we pointed out at the time, representatives of American

wood alcohol interests were extremely interested in the German and French methods of producing methanol, and after the particulars of M. Patart's process had been disclosed, negotiations were started from several points. It is understood, however, that the American process is not being operated under German or French patents, but is a result of American research and experiment carried on over the past two years. The plant, which is operated in conjunction with the Lazote synthetic ammonia installation, produces methanol from carbon monoxide and hydrogen under conditions of very high pressure, and so satisfactory are the results so far said to have been, that plant extensions are contemplated to meet the enormous American demand.

International Chemical Possibilities

THERE have so often been rumours of negotiations between British and German chemical interests in the last few years that the public has become rather sceptical on the point. It seems, however, that we may be on the eve of important developments. A deputation from I.C.I. has recently visited Germany and met the chiefs of the I.G. A visit was paid to the Leunawerke (the headquarters of the I.G. synthetic fertiliser manufacture), among other places. Sir Alfred Mond and Sir Harry McGowan led the deputation, and the latter, according to Press reports, is said to have stated on his return to this country that negotiations were in progress, but that they were in too early a stage for detailed reference. A further hint on the subject was dropped by Sir Alfred Mond in a speech to a number of members of Parliament on Tuesday, when he mentioned that he had recently returned from a trip in Europe, and had met a considerable number of leading men in business and economics. The idea of the necessity of forming an Economic Union of Europe had, he added, made greater headway than he had supposed.

The field of speculation opened up by this new alignment in European industry is so vast that it seems necessary to be cautious in uttering prophecies. Most interest, of course, centres round dyestuffs, the production of oil from coal, and synthetic nitrogenous fertilisers—the "Big Three" of modern chemical industry. In regard to the production of fertilisers some rather curious possibilities have recently been hinted at. The present state of the Chilean nitrate industry suggests that all news emanating from South America must be treated with caution. It has been stated that at least two new processes of extraction of nitrate, giving greatly increased yields, have been worked out, but so far the real value of these claims is unknown. Furthermore, there is considerable evidence that German industrialists are taking a keen interest in the Chilean position, and it has even been suggested that the Germans were taking over the interests of a very large nitrate concern, although this was promptly denied. It is certain that as far as ammonium salts are concerned, the synthetic process has achieved, and will retain, pre-eminence. There is no reason, however, why this should stand in the way of an extensive use of Chile nitrate if the latter can be produced at economic prices; in fact, the use of both ammonium compounds and nitrates should, under these conditions, increase rapidly side by side. It is not, perhaps, travelling into too remote regions of speculation to suggest that it might be to the interest of all concerned for the production and distribution of all chemical fertilisers—synthetic and others—to be in the hands of allied groups, in order that all the resources of the world should be used to the best possible advantage; and it would be one of life's little ironies if the Chilean nitrate industry, having been badly shaken by the onset of the synthetic fertiliser producers, should be brought once more into a state of fruitful activity by those who appear at present to be its deadliest enemies.

Books Received

THE NATURAL HISTORY OF ICE AND SNOW. By A. E. H. Tutton. London: Kegan Paul, Trench, Trübner, and Co., Ltd. Pp. 320. 21s.

THE PRIMARY DECOMPOSITION OF COAL. 1. THE TEMPERATURE OF INITIAL DECOMPOSITION. Fuel Research Technical Paper No. 16. By J. G. King and R. E. Willgress. London: H.M. Stationery Office. Pp. 20. 9d.

SOME INDUSTRIAL DEVELOPMENTS AND THE CHEMICAL ENGINEER. Presidential Address by Sir Frederic L. Nathan. London: The Institution of Chemical Engineers. Pp. 7.

THE DYEING OF TEXTILE FIBRES. By R. S. Horsfall and L. G. Lawrie. London: Ernest Benn, Ltd. Pp. 415. 28s.

The Calendar

May		
9	Royal Society of Arts (Cantor Lecture): "The Measurement of Light" Lecture III. John W. T. Walsh. 8 p.m.	John Street, Adelphi, London, W.C.2.
9–13	Chemists' Exhibition. 11 a.m. to 9 p.m.	Holland Park Hall, London, W.
10	Institution of Petroleum Technologists: General Meeting. 5.30 p.m.	House of the Royal Society of Arts, Adelphi, London.
10	King Edward's Hospital Fund for London: "Are Capitalists Overpaid?" Sir Ernest Benn and James Maxton, M.P. 5.30 p.m.	London School of Economics, Aldwych, London.
11	Institute of Metals: "The Growth of Crystals in Supersaturated Liquids." Sir Henry A. Miers. 8 p.m.	Institution of Mechanical Engineers, Storey's Gate, Westminster, London.
12	Oil and Colour Chemists' Association: Annual General Meeting. "Some Physical Factors Influencing Properties of Paint Pigments." A. de Waele. 8 p.m.	8, St. Martin's Place, Trafalgar Square, London.
12	British Science Guild: Annual Dinner. Speakers: Sir Alfred Mond, Sir William Pope, etc.	Criterion Restaurant, London.
12	Optical Society. 7.30 p.m.	Imperial College of Science and Technology, London.
18	Society of Glass Technology. 2.30 p.m.	London.
18	Chemical Society: Faraday Lecture by Professor Richard Willstätter. 5.30 p.m.	Royal Institution, 21, Albemarle St., Piccadilly, London.
18	Institute of Chemistry (Belfast Section): Annual General Meeting.	Royal Belfast Academical Institution.
18	Electroplaters' and Depositors' Technical Society: "Protective Effects of Metal Deposits." S. Wernick. 8.15 p.m.	Northampton Polytechnic Institute, St. John Street, London, E.C.1.
18	Royal Society of Arts: "Industrial Welfare in Great Britain and the United States." Robert R. Hyde. 8 p.m.	John Street, Adelphi, London.
19	Chemical Society. 8 p.m.	Burlington House, Piccadilly, London.
20	Royal Institution of Great Britain: "The Structure of the Silicates." Professor W. L. Bragg. 9 p.m.	21, Albemarle Street, Piccadilly, London.
25	Faraday Society: Annual General Meeting. 8 p.m.	13, South Square, London, W.C.1.

Commercial Production of Ethylene Glycol

The Present Technological Position

We have received from Dr. E. R. Weidlein, Director of the Mellon Institute, the following interesting notes on the commercial production of ethylene glycol in the United States. The author disposes of any doubt as to the commercial production of the substance and as to its uses, but indicates that there is no intention to compete directly with the glycerol market.

I HAVE read with interest, interspersed with surprise, two communications concerning the manufacture and uses of ethylene glycol that appeared in recent numbers of *Seifensieder Zeitung* (53 (1926), 595 and 818). According to Grossmann's article, the first cited, there is doubt in Germany respecting the commercial success of the manufacture of ethylene glycol in the United States; and in the note next referred to, "X" says that "it is necessary to warn against hopes that ethylene glycol can fully and completely take the place of glycerol," and that, in the explosives industry, "ethylene glycol will never be able to displace glycerol." Since these and other statements of Grossmann and of his anonymous colleague may have given rise to incorrect conclusions in the minds of the readers of their letters, I will present an accurate description of the technological status of ethylene glycol in the United States.

The investigational work that has resulted in the present activities of the Carbide and Carbon Chemicals Corporation, the manufacturers of ethylene glycol ("prestone") and of other derivatives of the olefine gases (*e.g.*, diethyl sulphate, ethylene dichloride, isopropanol, and ethylene chlorhydrin), was begun at the Mellon Institute in 1914 by Dr. George Oliver Curme, jr., whose brilliant research achievements, particularly during the following six years, constitute a series of very notable contributions to industrial chemistry. Dr. Curme and his co-workers, the late Dr. H. R. Curme, Mr. E. W. Reid, and Dr. C. O. Young, have described some of the general results of their studies in a group of papers in *Chemical and Metallurgical Engineering* (25 (1921), 907–909, 957–959, 999–1000, 1049–1050, and 1091–1092). After passing through various experimental stages of gradually increasing size and efficiency, the processes of making ethylene glycol and other related compounds were first operated successfully on the commercial scale in the summer of 1925.

Ethylene glycol has, therefore, been manufactured commercially for almost two years by the Carbide and Carbon Chemicals Corporation, which is a unit of the Union Carbide and Carbon Corporation, New York. The production of ethylene glycol at the Corporation's South Charleston (West Virginia) plant was more than five million lb. in 1926, and there is every indication that the total output of the chemical in 1927 will be much greater than that. It is evident from these facts alone that the manufacture of ethylene glycol has already taken a definite place in American chemical industry.

Not a Mere Substitute for Glycerol

The researches conducted at the Mellon Institute, supplemented by extensive practical experience, make it clear that ethylene glycol is not a mere substitute for glycerol, but is actually superior to glycerol in many of its commercial applications. For example, as an "anti-freeze," ethylene glycol will depress the freezing-point of water approximately twenty per cent. more than an equivalent quantity of glycerol.

It will interest European explosives specialists to learn that every large explosives manufacturer in the United States is now using ethylene glycol in dynamite. Ethylene glycol may readily be nitrated, and its inclusion in dynamite gives a freeze-resistant ("anti-freeze") product, without diminution of sensitivity, which is not the case with polymerised glycerol, used hitherto for the same purpose. For further information, the reader is referred to an article on glycol dinitrate, by Mr. William H. Rinkenback, of the Bureau of Mines, that will probably have appeared in *Chemical and Metallurgical Engineering* before this letter can be published.

Because of the nature of the process of manufacturing ethylene glycol, its price does not follow the glycerol market. The Carbide and Carbon Chemicals Corporation has set the price at about thirty cents a lb. for spot quantities; this price has not varied during the whole of the past year, whereas the cost of c.p. glycerol has ranged from twenty-five cents to thirty-five cents a lb. It is understood that large consumers buying ethylene glycol on a contract basis have secured prices considerably lower than thirty cents a lb.

I know that the American producer of ethylene glycol has no intention of competing directly with glycerol manufacturers. The Carbide and Carbon Chemicals Corporation takes the view that both ethylene glycol and glycerol have their specific uses. Rather than attempt to capture the greater part of the glycerol market, the Corporation has announced that it will accept only that portion of the business that wants a superior article at a stable price. After this point has been reached, the officers say, the Corporation's manufacturing activities will be directed toward the production of other compounds, such as ethylene glycol mono-ethyl ether ("cellosolve") which has already reached an important position as a solvent in the manufacture of lacquers.

Dr. F. A. Freeth, F.R.S.

Transferred to I.C.I. Headquarters Staff

DR. F. A. FREETH, O.B.E., F.R.S., has been transferred from Brunner Mond and Co., Northwich, where he held the position of chief chemist, to the headquarters staff of Imperial Chemical Industries, Ltd. Dr. Freeth was born in Birkenhead in 1884 and educated at the University of Liverpool, where he obtained the degree of B.Sc. with first class honours in chemistry in 1905 and that of M.Sc. in 1906. He joined the staff of Brunner Mond and Co. in 1907.

On the outbreak of the war he was serving in the Territorial Army, mobilised and proceeded to France in February, 1915, and was recalled for services in connection with the manufacture of explosives, and had a large share in the invention of the numerous processes worked by Brunner Mond and Co. He received the O.B.E. in 1918. He was awarded the degree of Doctor in the Faculty of Mathematics and Physics of the University of Leiden in 1924 and a Doctorate of Science in the University of Liverpool in the same year. He was elected a Fellow of the Royal Society in 1925 and is an authority on heterogeneous equilibria.

Dr. Freeth has been a keen Territorial soldier for many years and was awarded one of the few Brevet Majorities on January 1 of this year. He is a member of the Council of the Chemical Society, a Fellow of the Institute of Chemistry, and of the Institute of Physics.

Dyestuff Licences in April

THE following statement relating to applications for licences under the Dyestuffs (Import Regulation) Act, 1920, made during April, has been furnished to the Board of Trade by the Dyestuffs Advisory Licensing Committee:—

The total number of applications received during the month was 624, of which 496 were from merchants or importers. To these should be added 26 cases outstanding on March 31, making a total for the month of 650. These were dealt with as follows:—Granted, 560 (of which 527 were dealt with within 7 days of receipt); referred to British makers of similar products, 56 (of which 49 were dealt with within 7 days of receipt); referred to reparation supplies available, 5 (all dealt with within 2 days of receipt); outstanding on April 30, 29.

Of the total of 650 applications received, 581, or 89 per cent., were dealt with within 7 days of receipt.

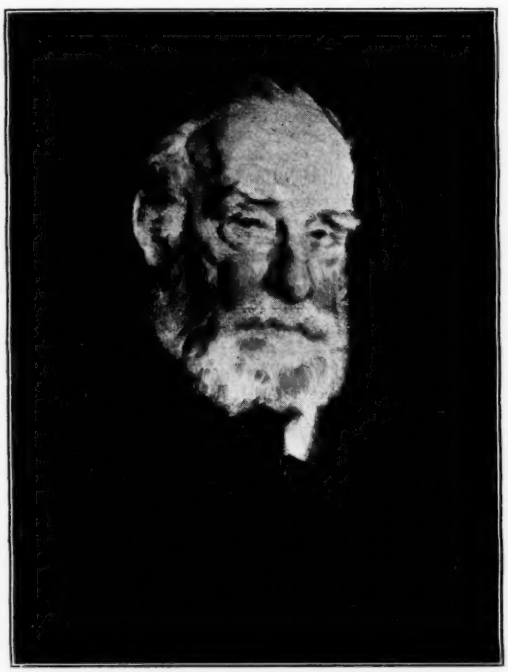
Celanese Developments

IT is understood that Drs. Henri and Camille Dreyfus, joint managing directors, have acquired control of the British Celanese Co. through purchases of shares in the market. The operation is reported to have involved a cost of nearly £2,000,000. The British Celanese Co. has the exclusive rights in the Dreyfus patents for the manufacture of cellulose acetate silk for the British Empire, except Canada, and has acquired other rights from them. It is also announced from America that the American Cellulose and Chemical Manufacturing Co. has changed its name to the Celanese Corporation of America.

A Portrait of Professor Armstrong

Exhibit at the Academy

In this year's Royal Academy exhibits there are two portraits of interest to chemical visitors—one of Professor H. E. Armstrong, by Mr. T. C. Dugdale, and one of Mrs. Henry Mond, by Mr. Glyn Philpot. The reproduction below of the Armstrong portrait gives some idea of the strength of the artist's work, though in the photograph the powerful effect of the colouring is, of course, lost. The artist has caught the professor in a characteristic pose and mood; he is seated, with a



model of one of his beloved carbon compounds in his right hand, and the intruder, meeting the searching gaze of those wise old eyes, is left uncertain of his welcome—it may be a flash of scorching sarcasm to the unwanted or, to the favoured, a gracious outflow of humour and gaiety. One of our best judges of portrait work describes the body as "rather vaguely realised," but "the head attractively painted with fine sensibility," and, it may be added, with faithfulness and understanding. It is a work that will enable future generations to recall a great chemist and a great character of his day. The portrait is very well hung.

Mr. Philpot's portrait of Mrs. Henry Mond, a slight figure sitting on the floor in front of a Japanese picture screen, is described as "an attractive and very accomplished work."

Copper Production in Canada

The Dominion Bureau of Statistics at Ottawa reports that copper production from Canadian ores during 1926 amounted to 132,345,152 lb., valued at $17,386,867. Ontario's production was obtained mainly from the nickel-copper mines of the Sudbury district, where the ore is smelted to a nickel-copper matte. A small amount of copper was recovered from the silver-cobalt ores, and the Argonaut mine, originally a gold producer, shipped copper concentrates to United States smelters for refining. The matte made by the Mond Nickel Co. is shipped to Wales for refining. There the copper is extracted in the form of copper sulphate, for sale to the vineyards in Southern France and Italy. Some matte made by the International Nickel Co. at Copper Cliff was exported to Huntington, West Virginia, U.S.A., for manufacture directly into monel metal; the remainder was shipped to the company's refinery at Port Colborne, Ontario, where converter and electrolytic copper are made.

United Institute of Fuel

The Terms of Fusion

A joint meeting of the vice-presidents and members of the councils of the Institution of Fuel Technology and the Institution of Fuel Economy Engineers was held under the chairmanship of Sir Alfred Mond at 37, Lowndes Square, London, on Friday, April 29. As president of both institutions, in November last, Sir Alfred Mond, having found a general desire both amongst those most closely associated with the problems of fuel economy and amongst those throughout the country who have a general interest in the question, that the two existing institutions should be merged into one, suggested terms of fusion.

The following terms were subsequently accepted by the councils of both institutions:—

1. That the name of the merged institutions be "The Institute of Fuel"; (2) that the councils of both institutions as constituted at present be merged and form the council of the Institute of Fuel, and that in the autumn following the inauguration of the Institute of Fuel a new council shall be elected by ballot of the members of the institute; (3) that the present honorary secretaries of each present institution be joint honorary secretaries of the Institute of Fuel.

The Future of Fuel Technology

At the meeting, the final steps for the fusion of the existing institutions and the inauguration of the Institute of Fuel were taken. Sir Alfred Mond expressed his great gratification that the fusion had been successfully accomplished, and thanked the vice-presidents, chairman, and members of the council of both institutions for their co-operation in bringing about the present happy result. The essential importance of the problems connected with fuel economy and fuel technology to the future of British industry was becoming increasingly recognised. The Government was vitally interested in the subject, and had appointed a National Fuel and Power Committee, of which he had the honour to be chairman, to investigate and consult upon the various problems in their many aspects. That committee was progressing satisfactorily with its work, and it was of the utmost importance that there should be a unified institution, important in numbers and personnel, to investigate, advise, and instruct the committee and the community on these highly technical matters. From the readiness to co-operate which had already been shown, he felt that the Institute of Fuel was being inaugurated under the most favourable auspices. There had been many who had been waiting to join a unified institute, and now doubtless they would all come forward to add strength and numbers.

Sir Alfred Mond moved the formal resolutions to give effect to the fusion, which were seconded by Sir Hugo Hirst, who said that on account of the national importance of the subject and of the fact that it was essential that there should be one body to deal authoritatively with the problems of fuel technology, he was very glad that the fusion had been effected.

Sir William Larke proposed and Sir Philip Dawson seconded the appointment of Mr. H. L. Pirie and Mr. Edgar C. Evans as joint honorary secretaries of the Institute of Fuel. This was carried unanimously.

The following were present: Sir Alfred Mond (president), Sir Hugo Hirst, Sir David Milne-Watson, Colonel Sir William Smith, Professor Harold B. Dixon, Professor R. V. Wheeler, Sir William Larke (chairman of the Institution of Fuel Technology), Mr. P. C. Pope (chairman of the Institution of Fuel Economy Engineers), Sir Philip Dawson, Messrs. G. R. Thursfield, F. A. Freeth, T. Barratt, A. W. A. Chivers, R. Lessing, John D. Troup, H. Tomlinson-Lee, John Bruce, J. Gander, T. Trimnell, W. M. Selvey, Edgar C. Evans, S. McEwen, W. A. Woodeson, E. W. L. Nicol, H. L. Pirie, L. C. Harvey, M. W. Travers, and T. Hardie.

Favourable Tests of "L. & N." Oil

A report of tests carried out by the National Physical Laboratory shows that oil distilled from coal at the works of Sensible Heat Distillation, Ltd., is of higher quality for lubricating purposes than imported mineral well oil. The report states that "L. and N." oil distilled from coal would stand pressure up to 1,000 lb. per square inch, whereas well oil failed at 800 lb. per square inch. The co-efficient of friction of "L. and N." coal oil was found to be less at low pressures than that of well oil, and at higher pressures was the same.

Ultra Violet Light in Chemistry

Its Use in Quantitative Analysis

THE application of ultra violet light to chemical research was the matter treated in a paper on his investigations into the subject read by Mr. A. A. King, works manager of Albright and Wilson, of Oldbury, at a recent meeting of the Birmingham and Midland section of the Society of Chemical Industry.

One of the most urgent needs of chemists and others was, he said, practical filters by means of which any selected region in the ultra violet spectrum might be isolated. When a filter was discovered which would pass the shortest ultra violet rays a wide field of research would be opened. None was at present available, and hence it was necessary, to get approximately the result desired, to compare differences in reaction obtained with filters which still allow visible as well as more or less ultra violet rays to pass through them. Perhaps the most useful filter for fluorescence work was Chance Bros.' U.V. glass. This glass, while cutting out all but the extreme red of the visible spectrum (a very faint region between 7,000 A.U. and 7,500 A.U.), transmitted rays from 4,000 A.U. to 3,250 A.U. The longest rays in the ultra violet would also pass through ordinary glass so that fluorescence experiments could be conducted in ordinary glass vessels with this range of radiation, but the fluorescence in the glass itself must be allowed for. It was physiologically impossible to experience complete darkness in a room into which invisible ultra violet rays were admitted. Even though every other material within range was non-fluorescent the lens of the eye was fluorescent in these rays and the retina becomes aware of a blue misty illumination.

An important application of this effect for the chemist to-day was that of distinguishing by their fluorescence certain imitation gems and precious stones from the pure stones. The method was not confined to such materials, and it promised important development.

Water and Arsenic Tests

Even laboratory "distilled" water might profitably be examined in the rays, when certain impurities, otherwise unsuspected, would show up. The author demonstrated the need for a succession of redistillations, culminating in double distillation in platinum vessels, to obtain a practically fluorescence proof sample of distilled water. The ultra violet light could be used for testing the presence of arsenic.

A year ago he had recourse to the most refined of known methods of detecting and estimating minute quantities of arsenic in food substances and finally selected the Gutzeit method which, giving a mercury arsenic yellow stain gave results most suitable for further examination. Although intensification in monochromatic light served its purpose it occurred to him to expose the stains to ultra violet radiation, and he discovered that the method made possible quantitative estimation of arsenious oxide of an order of minuteness beyond what had been hitherto possible with any other method with which he was acquainted. Absorption of the rays by the mercury arsenic stain made this intensely black, so much so, that stains which were quite indistinguishable in ordinary light stood out a startling black upon a fluorescent background. It had been made possible to estimate with certainty as little as 0·00000005 gram as arsenious oxide, and to detect even smaller masses. A pleasing by-product of the investigation was the demonstration that it was possible to get materials, such as zinc and sulphuric acid, so pure that an all but perfect blank could be obtained. There was to be seen in the rays a series of arsenic stains ranging from ·000001 gram to ·0000001 gram arsenious oxide, the last five of which were quite invisible in ordinary light whether monochromatic or otherwise. Arising from this work the author showed an interesting example of detection of impurity. In good samples of crystallised mercuric chloride fluorescing in the rays some parts were bright pink and others faintly blue, and it was noteworthy that a pink fluorescing lump when broken up yields some pink and some blue fluorescing pieces. A sample of mercuric chloride, twice recrystallised in the laboratory, showed no sign of pink fluorescence, which had been found to be due to the presence of mercurous chloride. The ultra violet light showed the distinction between vegetable and mineral oils; amber (genuine and artificial); uranium acetate and nitrate, and some organic and inorganic pigments.

A fluorescence experiment opened up for the laboratory a new field of titration work. It was suggested by work done by Mellet and Bischoff in detecting obliterated and forged signatures on cheques, etc., by exposing them to ultra violet radiation. The author's example was the titration of phosphates, which he had found useful for muddy liquors. To an ordinary sodium phosphate in neutral solution, was added a drop of saturated solution of quinine sulphate. As long as the solution was alkaline there was but a trifling fluorescence, but the approach to acidity was heralded by an intensely blue fluorescence. This was due to the temporary, and eventually permanent, formation of the acid sulphate of quinine. He suggested that the method might lend itself to the investigation of the mixing of reactive and other solutions.

London Chemical Industry Section

The Work of the Past Year

THE annual general meeting of the London Section of the Society of Chemical Industry was held on Monday, Mr. C. S. Garland in the chair.

The report of the committee for the session 1926–27 stated that the average attendance at the nine meetings had been 74, which was believed to be a record. Since the last Annual Meeting of the Section, the first Congress of Chemists held in this country had taken place in London, and was generally recognised as an unqualified success.

Old and New Officers

The following officers were elected:—Chairman: Mr. W. J. A. Butterfield; Hon. Secretary: Dr. R. T. Colgate; Committee: Dr. T. H. Durrans, Dr. G. W. Monier-Williams, Mr. S. G. M. Ure, and Mr. A. J. V. Underwood. The re-election of Professor G. T. Morgan to the Committee was confirmed.

The Chairman, in proposing a vote of thanks to Dr. Monier-Williams for the manner in which he had conducted the affairs of the Section for the past seven years, said that the success of the Section was due very largely to his work.

Dr. Monier-Williams, in expressing appreciation of the Chairman's remarks, said that in the course of the seven years during which he had held office he had served under four chairmen—Mr. Julian L. Baker, Mr. E. V. Evans, Dr. Bernard Dyer, and Mr. Garland—and everyone would agree that he had been extremely fortunate. They had made his work a pleasure, and they had all borne on their own shoulders far more than their normal share of the work.

Mr. W. J. A. Butterfield proposed a vote of thanks to Mr. Garland for his very able conduct of the affairs of the Section during the past two years. It was an open secret, he said, that when the question of the chairmanship for those two years—which included the period of the Annual Meeting of the Society in London—was under consideration, there was unanimous agreement that Mr. Garland was the one man with the energy, ability, and compelling force to carry through the duties of chairmanship. No one could have performed those duties better; the organisation of the Annual Meeting, in the hands of the London Section, was supervised by him in the most capable manner, and the arrangements were carried out in a manner which redounded to the credit of the Section and of the Society. The one note of regret was that Mr. Garland had set such a standard of efficiency that his immediate successors would find it very hard to live up to it.

Dr. Bernard Dyer (Past-Chairman of the Section), in seconding, said that all members of the Section recognised what Mr. Garland had done, but those who had worked under him on the committee knew still more how indefatigable he had been. Nothing could be more eloquent in his praise than the success which had attended the Annual Meeting of the Society last year.

Mr. Garland said that probably the most difficult task he had had in his two years of office had been to listen to the undeserved compliments of Mr. Butterfield and Dr. Dyer. His two years of office as chairman had been a period of unalloyed pleasure, not only because the work itself had been so pleasant, but also because he had had the loyal help and co-operation of a number of men much more able than himself, who had been good enough to cover up his deficiencies, and, perhaps, make the most of his few virtues. His interest in the Section in the future would not be less than it had been in the past.

I.G. Developments

New Plant at the Leunawerke

ACCORDING to Mr. W. T. Dougherty, U.S.A. Trade Commissioner in Berlin, the I.G. is erecting at Leunawerke, its atmospheric nitrogen plant, three new units, 30,000 operatives being engaged in the construction. The largest new undertaking of the Leunawerke is the great oil-from-coal plant, which is already in skeleton structure and which was expected to begin operations, on a small scale at least, during April. The second large unit is a Nitrophoska plant, for the production of the new combined nitrogen-potash-phosphoric-acid fertiliser, with a probable monthly capacity of 10,000 tons. In addition, the Leunawerke new calcium nitrate plant at Leuna is believed to be capable of producing 10,000 tons monthly of Nitrophoska.

The present establishments of the Leunawerke cover an area almost one mile wide and three miles long. Its air-fixation plant—the major operation—has a capacity of 300,000 tons of fixed nitrogen annually. By the Haber-Bosch process of direct ammonia synthesis from air nitrogen and water gas hydrogen led over an activated iron-oxide catalyst under pressure and temperature it produces ammonia, and therefrom chiefly ammonium sulphate. Four giant silos have a combined storage capacity of 1,000,000 tons of fertiliser salts. Early in March about 95,000 tons were in storage during a necessary drying stage—indicating that the German fixed-nitrogen fertiliser business is good. The three new units of the Leunawerke lie parallel to this major development.

Oil-from-Coal Developments

The hydrogenation unit of the new oil-from-coal plant was, according to reports in Germany, to have commenced initial production in April, but the distillation plants will not be operating at full capacity for at least a year. The plan is to hydrogenate low-grade lignite under pressure and temperature to produce substitute petroleum crudes and therefrom, by distillation, the petroleum fractions. It is generally accepted in Germany that the I. G. chemists have developed a cheaper process for producing hydrogen by leading hydrogen-containing raw gases over lignite mined on the spot instead of coke as heretofore. At the Leunawerke, it is believed, considerable quantities of 100 per cent. pure sulphur are being recovered from waste gases by washing them with alkali iron solutions or slimes, to which tartaric or oxalic acid is added, and leading them through absorbent carbon or silicic acid. This by-product is sold at the American market price. These and other economies are expected to give the Leunawerke an outstanding advantage among modern chemical enterprises.

Phosphorus for the new mixed fertiliser, Nitrophoska, will be furnished by Central German Nitrogen Works, at Piesteritz, part of whose plant space is under lease by the I. G. Piesteritz will shortly operate the Lilienroth furnace, perhaps utilising some native phosphate rock, shipping this production to near-by Leuna for treatment to produce Nitrophoska.

I.G. Dyestuffs in America

Following the constitution in this country last year of a sales organisation for I. G. products, the incorporation papers have been filed in Louisiana, U.S.A., of I. G. Dyestuff Corporation, and works will be built at Monroe, Louisiana. A group of German chemists has recently visited the district, but, it is stated, nothing further is known of the plan. The negotiations seem very similar to those followed in this country last year when the I. G. set up its sales organisation here. The I. G. sends engineers and patents to the Grasselli Dyestuffs Corporation and its dyes manufactured in America supplement German dyes handled by the associated company of H. Metz, of General Dyestuffs. The I. G. has reopened its old works at Albany and at Paterson.

I.G. Annual Report

THE I.G. Farbenindustrie Akt.-Ges. announces a net profit of 68,700,000 marks (about £3,350,000). A dividend of 10 per cent. has been declared. The annual report estimates that the exports of synthetic nitrate will be 20 per cent. higher than last year. Last month's purchases disposed of the entire stocks. The report further declares that in spite of increased competition in dyestuffs, the trust held its own, and in some markets even increased its sales.

"C.A." Queries

We receive so many inquiries from readers as to technical, industrial, and other points, that we have decided to make a selection for publication. In cases where the answers are of general interest, they will be published; in others, the answers will simply be passed on to the inquirers. Readers are invited to supply information on the subjects of the queries :—

44 (*Ethyl Cellulose*).—"We shall be very glad to know if you can tell us the name of a supplier of ethyl cellulose. This is a special cellulose made according to a process or formula or invention of Dr. Leon Lilienfeld, of Vienna, and we are under the impression that it is not manufactured in this country, although it is supplied by some of the cellulose manufacturers in Germany. Any information you can give us in regard to the above will be much appreciated, but failing this perhaps you could obtain for us the address of Dr. Leon Lilienfeld, in Vienna, when it might be possible for us to communicate direct with him."

Replies

34 (*Acetylene Carbon Black, March* 26).—Shawinigan, Ltd., 83, Cannon Street, London, write :—"We are much interested in the inquiry which appeared in your issue of March 26. Our works in Canada are, we believe, the only works in the world manufacturing acetylene carbon black on a large scale, and we might say that we sell many hundreds of tons of this product. We have ample stocks in this country to take care of any immediate demand, and shall be pleased to supply samples."

Voluntary Liquidation of Rayon Manufacturing Co.

A LARGELY attended meeting of the creditors of the Rayon Manufacturing Co., Ltd., was held at the Institute of Chartered Accountants, Moorgate Place, London, on Wednesday, April 27, when the chair was taken by Sir W. H. Peat, the liquidator of the company under the voluntary liquidation. After outlining the history of the company since its incorporation in June, 1925, the chairman said that certain negotiations had been going on by which it was hoped that the business could be preserved, and he thought that the best course for the creditors would be to give every facility for those negotiations to be pursued with a view to reconstruction, which, of course, must inevitably be far more advantageous than any sort of realisation of the assets. Sir Sidney Skinner, the chairman of the company, had very great faith in the possibilities of the business if only it could be given a chance. A resolution was passed unanimously confirming the appointment of Sir W. H. Peat as liquidator of the company, and a committee of inspection was appointed representing four of the principal creditors.

Potash Syndicate: U.S. Government Action

IT is reported from Berlin that the agreement between the French and German potash syndicates to amalgamate their selling organisations in America and to carry them on jointly as from May 1 has been made the occasion of a suit by the U.S. Government under the anti-trust regulations for the vetoing of the formation of the sales organisation, and for prohibiting "any similar agreement or any increase of the price of potash in the United States." In addition to the above Franco-German agreement there are others in regard to the rationing of the exports of the two industries and to price regulation. The German authorities are maintaining silence on the point, but it is thought that the American action has been taken solely to secure a price reduction, or a guarantee of a stable price for French and German potash.

Electrolytic Plant Company's Affairs

A MEETING of the creditors of the International Electrolytic Plant Co., Ltd., was held on Tuesday, April 19, when Mr. Knowles, chairman of the company, explained the situation, which, he said, had been brought about solely in consequence of the inability of the company to obtain certain moneys in respect of contracts in France. After hearing Mr. Knowles's explanation a committee of four of the creditors was appointed to see if an arrangement could be arrived at by which the creditors might be satisfactorily dealt with and the company enabled to carry on its business so as to complete the contracts in France. A report of the committee will be sent to the creditors for consideration and a meeting will be called in about a week's time.

From Week to Week

THE BRITISH AMERICAN NICKEL CO.'s plant at Deschenes, Quebec, near Ottawa, has been purchased by McCallum, Smith and Co., Ltd., of Montreal.

A REMARKABLE DRIVE of 157 yards was made recently when Mr. Malcolm Dunbar, managing director of L. Oertling, Ltd., holed out in one at the twelfth hole at the Gerrards Cross Golf Club.

THE SENATUS ACCADEMIUS of the University of St. Andrews has agreed to confer the honorary degree of Doctor of Laws on Sir Alfred Mond and on Sir Richard Gregory, editor of *Nature*.

MR. M. R. MOREY has been appointed demonstrator in organic chemistry by the Senate of the Sydney University, and Mr. G. W. Leeper, M.Sc., has been appointed temporary lecturer in the same subject at Adelaide University.

A LIMITED NUMBER OF RESEARCH SCHOLARSHIPS IN TECHNOLOGY, including Applied Chemistry, not exceeding £100 in value and tenable for one year, are offered by the governing body of Manchester Municipal College of Technology. July 6 is the latest date of application. All information may be obtained on written application to the Registrar.

DR. J. J. WILLAMAN, of the department of agricultural biochemistry, University of Minnesota, has been awarded a European fellowship by the International Education Board for 1927-28, and will work principally at the Imperial College of Science and Technology, London, on the relation of the pectic enzymes of fungi to the pectin components of the host plants.

DAMAGE ESTIMATED AT ABOUT £600 was done by a fire at the Bowling Dye Works, the premises of Edward Ripley and Son, Ltd., at Bradford, on Tuesday. The outbreak occurred in the Cravenette department and, although the roof was serious involved, the Bradford fire brigade, and the firm's private brigade, prevented the flames from spreading to adjoining buildings.

MR. ERNEST M. MYERS has been appointed by Bolckow Vaughan and Co. as manager of their coke ovens and by-products plants in the Bishop Auckland district, in succession to Mr. J. W. Porteous, who is retiring. Mr. R. H. Archer Coulson has been engaged as manager of the company's Cleveland steel works at South Bank, in succession to Mr. J. S. Kerr, who has left the company's service.

THE RAMSAY MEMORIAL TRUSTEES will, at the end of June, consider applications for a Ramsay Memorial Fellowship for Chemical Research. The value of the Fellowship will be £250 per annum, to which may be added a grant for expenses not exceeding £50 per annum. Applications should be made, not later than June 6, to the Secretary, Ramsay Memorial Fellowship Trust, University College, Gower Street, London, W.C.1, from whom full particulars may be obtained.

THE INTEREST IN THE BUSINESS OF A WELL-KNOWN FIRM of cement manufacturers that the Ship Canal Portland Cement Manufacturers, Ltd., was last week reported to have acquired, is now understood to be in the Leamington firm of Greaves, Bull and Lakin, Ltd. It is also understood that this interest takes the form of a subscription for 400,000 ordinary shares of 5s. in that company, which is to be reconstituted and will shortly make a public issue of both ordinary shares and debentures. The latter will be for a total of £200,000, and bear interest at 6½ per cent., the issue price being 95 per cent. Ordinary shares (5s.) will be offered at 1s. premium.

AT A MEETING of the Academy of Science in Paris on Monday, it was announced that Baron Edmond de Rothschild, who has already done great service to scientific research in France by creating the Rothschild Foundation, has made another gift of frs.30,000,000 (£242,000) to the foundation for the endowment of an institute for physical and chemical research as applied to biology. Baron de Rothschild has in view a better knowledge of the working of the human body apart from the science of bacteriology which is provided by the Pasteur Institute. The work of the Institute is to be conducted by a committee consisting of Professor Jean Perrin, winner of the Nobel Prize for Physics; Professor Job, professor of chemistry at the Sorbonne; Professor Andre Mayer; and Professor Pierre Girard.

ANALYTICAL AND CONSULTING CHEMISTS in America discussed plans to improve business conditions and to stop certain trade abuses, at a meeting of some thirty leaders in this field in New York City at the Chemists' Club recently. This, an organisation meeting, was the result of a previous gathering, when a committee was appointed to look into the advisability of such a move. This committee reported favourably upon the question and recommended that an independent association be formed "to advance the cause of analytical and consulting chemists." Upon unanimous acceptance by those present of the idea of forming such an association, which would be in position to co-operate with other chemical and allied organisations, but which would not be necessarily a part of any of them, a nominating committee was appointed to suggest temporary officers to complete the organisation. The discussion preceding this step dealt with numerous unethical practices by analysts and consultants, which it is sought to correct through united action.

SIR ALFRED MOND has been appointed a director of the Westminster Bank.

AMONG TRADES FACILITIES ACTS GRANTS made by the Treasury up to March 31 last is £100,000 to the Fuel Production Co., Ltd., for the erection of a low temperature carbonisation plant.

AT THE ANNUAL MEETING of the Royal Institution on Monday, Sir Robert Robertson, F.R.S., the Government chemist, was re-elected as secretary, and among those elected as visitors was Mr. William Macnab.

DR. M. C. WHITAKER has retired from the posts of President and Vice-President of the U.S. Industrial Alcohol Co., but will continue his connection with the organisation as a director and as a consulting chemical engineer.

A. COMRIE, an explosives worker at Nobel's Explosive Works, Redding, was injured in a slight explosion on Monday. He was drying powder when the temperature of the mixture rose and an explosion occurred. No damage was done to property.

THE FIRM OF LEONARD HILL ADVERTISING, 173, Fleet Street, London, announce that from May 2 the business will be conducted as a limited company, to be known as Leonard Hill Advertising, Ltd. The control will remain in the hands of the present partners, Mr. W. Leonard Hill and Mr. C. E. Bond.

THE CARNEGIE HERO FUND trustees have awarded an honorary certificate and £10 to John Dodge, an erector for constructional engineering, of Hazlebury Green, Lower Edmonton, London, who rescued a fellow workman who fell into a tank containing ammoniated liquor and tar at Mitcham Gasworks.

THE LOOMS OF THE CANADIAN CELANESE PLANT at Drummondville, Quebec, have been started and it is expected shortly to supply the Canadian trade with celanese textiles woven in Canada. As soon as possible the company will start the erection of its chemical acetate plant, and when this addition is completed, the entire process of spinning, weaving, dyeing, finishing, and printing the celanese yarns and fabrics will be carried out at Drummondville.

SUGAR BEET NEWS.—Work has been commenced on the new sugar beet factory at Allscott, near Wellington, Shropshire. There will be twenty-seven buildings apart from the main sugar works which, when complete, are estimated to be able to deal with from 800 to 1,000 tons of beet daily. Work is also proceeding apace on the site of the sugar beet factory on the East Riding side of the river at Selby. It is being erected for the Selby Sugar Co., Ltd., and such progress has now been made that it is hoped that the works may be ready by September 15 instead of in October. Two thousand growers will cultivate 8,500 acres of beet for the factory, and seed has been despatched to all the growers, who in some cases have already begun to sow the crop.

APPLICATIONS ARE INVITED for the following appointments: Gas Examiners (part time). The Clerk of the London County Council, The County Hall, Westminster Bridge, S.E.1. May 9.—Fellowships (Salters' Institute of Industrial Chemistry) for chemists of post-graduate standing. £250 to £300 or higher. The Director, Salters' Institute of Industrial Chemistry, Salters' Hall, St. Swithin's Lane, London, E.C.4. June 1.—Grants-in-aid to young men and women (17 years of age and over) employed in chemical works in or near London. The Director, Salters' Institute of Industrial Chemistry, Salters' Hall, St. Swithin's Lane, London, E.C.4. June 10.—Assistant Lecturer in Chemistry, with Foods and Drugs or Pharmaceutical qualifications, in the Cardiff Technical College. The Director of Education, City Hall, Cardiff. May 14.—Professor of Organic Chemistry in Indian Institute of Science, Bangalore. Rs. 1,250–50–1,500 per month, with overseas allowance Rs. 500 per month. Dr. M. O. Forster, c/o Jeremiah Lyon and Co., 4, Corbet Court, London, E.C.3. June 29.

RECENT WILLS INCLUDE: Mr. Oliver John Williams, of Victoria Street, London, chairman of William's Agency, Ltd., the National Explosives Co., Ltd., Betts and Co., Ltd., and St. Swithin's Syndicate, Ltd. £77,668—Mr. William Henry Stuart, of Wordsley, near Stourbridge, chairman of Stuart and Sons, Ltd., Red House Glass Works, Wordsley, and chairman of the British Flint Glass Manufacturers' Association, £44,463 (net personalty, £35,926).—Mr. Henry Percy Whittaker, of Higher Crumpsall, silk and cotton dyer, £15,612 (net personalty £14,381).—Mr. Arthur William Scott, for fifty-five years Phillips Professor of Science at St. Davids College, Lampeter, Cardiganshire, £33,521 (net personalty £31,956). Among his bequests were £7,000 to the University of Cambridge, the income to be applied for the furtherance of physical science, £1,000 to the Royal Society, £250 each to the British Association for the Advancement of Science, to the Physical Society, London, and to the Institute of Physics, London.—Mr. George Raine, of Newcastle-on-Tyne, formerly chairman and managing director of Raine and Co., Ltd., iron and steel manufacturers, of Winlaton Mill and the Delta Iron and Steel Works, Derwenthaugh, £59,298 (net personalty, £42,742).

Obituary

MR. WALTER BAGSHAW, aged 75, at Harrogate, on Wednesday, April 27. For 13 years Mr. Bagshaw was president of Batley Technical School. He was formerly partner and subsequently chairman in the firm of J. Bagshaw and Sons, Victoria Foundry, Batley.

References to Current Literature

British

ANALYSIS.—The immersion refractometer and its value in milk analysis. G. D. Elsdon and J. K. Stubbs. *Analyst*, April, pp. 193–214.

The examination of foodstuffs for preservatives: A. caution. A. Chaston Chapman. *Analyst*, April, pp. 215–217.

The determination of carbonyl in aldehydes and ketones. G. W. Ellis. *J. Chem. Soc.*, April, pp. 848–851.

DYESTUFFS.—Progress in the application of vat dyes (Studies in the development of Soledon colours (SDC) on the fibre). F. M. Rowe and C. D. Bean. *J. Soc. Dyers and Col.*, April, pp. 99–105.

GENERAL.—Apparent specific gravity and porosity. G. M. Nave. *J.S.C.I.*, April 22, pp. 158–159T.

Studies on the composition of coal. The resolution of coal by means of solvents. C. Cockram and R. V. Wheeler. *J. Chem. Soc.*, April, pp. 700–718.

X-ray investigation of the polymorphism of fatty acids. G. M. de Boer. *Nature*, April 30, pp. 634–635.

ORGANIC.—Heterocyclic compounds containing arsenic. I. The action of chloroacetamide on 3 : 4-diaminophenylarsinic acid. R. J. Ewins, G. Newbery, and R. W. E. Stickings. *J. Chem. Soc.*, April, pp. 851–855.

RUBBER.—The stabilisation of vulcanised rubber. P. Schidrowitz. *Rubber Age*, May, pp. 124–125.

SEWAGE.—Studies on the dissolved oxygen adsorption test. E. A. Cooper and W. H. Read. *J.S.C.I.*, April 22, pp. 154–156T.

The chemical oxidation of the constituents of sewage: The action of hydrogen peroxide. E. A. Cooper and W. H. Read. *J.S.C.I.*, April 22, pp. 156–157T.

United States

ANALYSIS.—Phenol tests. III. The indophenol test. H. D. Gibbs. *J. Biol. Chem.*, April, pp. 649–664.

Rapid determination of phenol in ammonia liquor and other solutions. R. D. Williams. *Ind. Eng. Chem.*, April 1, pp. 530–531.

Quantitative methods for the determination of mercury vapour. B. W. Nordlander. *Ind. Eng. Chem.*, April 1, pp. 522–524.

GENERAL.—Recent improvements in cane sugar manufacture. C. A. Browne. *Chem. Met. Eng.*, April, pp. 242–244.

The coalescence of an unfilterable precipitate of barium sulphate. H. M. Trimble. *J. Phys. Chem.*, April, pp. 601–606.

Distillation of formaldehyde solution. A. Zimmerli. *Ind. Eng. Chem.*, April 1, pp. 524–525.

INORGANIC.—Sodium aurothiosulphate. A simple method for its preparation. H. Brown. *J. Amer. Chem. Soc.*, April, pp. 958–959.

ORGANIC.—Action of anhydrous aluminium chloride on cresyl benzoates. E. H. Cox. *J. Amer. Chem. Soc.*, April, pp. 1028–1030.

The oxidation of glucose in alkaline solutions of iodine. F. W. Goebel. *J. Biol. Chem.*, April, pp. 801–808.

The preparation of hexonic and bionic and bionic acids by oxidation of aldoses with barium hypoiodite. F. W. Goebel. *J. Biol. Chem.*, April, pp. 809–814.

A phenylstearic acid from oleic acid. B. H. Nicolet and C. M. de Milt. *J. Amer. Chem. Soc.*, April, pp. 1103–1106.

The catalytic reduction of di- and triphenylamines with hydrogen and platinum-oxide platinum black. XV. G. S. Hiers and R. Adams. *J. Amer. Chem. Soc.*, April, pp. 1099–1103.

PHASE RULE.—Ternary systems. V. Potassium bicarbonate, potassium carbonate and water. A. E. and D. G. Hill. *J. Amer. Chem. Soc.*, April, pp. 967–969.

Studies on the system lime-alumina-silica. W. C. Hansen, W. Dyckerhoff, F. W. Ashton, and R. H. Bogue. *J. Phys. Chem.*, April, pp. 607–615.

The system sodium sulphate-water. R. E. Gibson. *J. Phys. Chem.*, April, pp. 496–510.

VITAMINS.—Fat-soluble vitamins. XXVII. The quantitative determination of vitamin A. A. H. Steenbock and K. H. Coward. *J. Biol. Chem.*, April, pp. 765–780.

PHYSICAL.—The effect of ionisation on optical rotation. II. Relations in the series of amino-acids, polypeptides and ketopiperazines. P. A. Levene, L. W. Bass, R. E. Steiger, and I. Bencowitz. *J. Biol. Chem.*, April, pp. 815–826.

The effect of higher aliphatic acids on the surface tension of a heavy hydrocarbon oil. E. C. Gilbert. *J. Phys. Chem.*, April, pp. 543–546.

German

ANALYSIS.—The analytical determination of cerium. T. Lindeman and M. Hafstad. *Z. anal. Chem.*, March 26 (Vol. 70 (XII)), pp. 433–443.

The determination of manganese as manganese pyrophosphate. D. Balarew and N. Desew. *Z. anal. Chem.*, March 26 (Vol. 70 (XII)), pp. 444–447.

A simple method for the determination of glucose in quantities of 1 to 15 mg. B. Issekutz and J. von Both. *Biochem. Z.*, April 7, pp. 298–302.

A rapid method of separation of silver and lead. H. Brintzinger. *Z. anal. Chem.*, March 26 (Vol. 70 (XII)), pp. 448–452.

A gravimetric separation method of selenium and tellurium. Z. Littman. *Chem.-Zeit.*, April 30, p. 323.

GENERAL.—The active forms of silicic acid (silica gel) and its power of adsorption. O. Ruff and P. Mautner. *Z. angew Chem.*, April 14, pp. 428–433.

Potentiometric observation of the reaction between calcium ferrocyanide and rubidium and calcium solutions. C. de Fresno and J. Vazquez. *Z. Elektrochem.*, April pp. 149–150.

ORGANIC.—A new method of preparation of hydrocarbostyril and its derivatives. F. Mayer, L. van Zütphen, and H. Philipps. *Berichte*, April 6, pp. 858–864.

The hydrolysis of silk fibroin by means of 25 per cent. formic acid. N. D. Zelinsky and K. P. Lawrowsky. *Biochem. Z.*, April 7, pp. 303 306.

Synthesis of α-keto-*d*-gluconic acid. C. Neuberg and T. Kitasato. *Biochem. Z.*, April 7, pp. 485–488.

SUGARS.—The degradation of reducing sugars. V. Determination of constitution of melibiose and raffinose. G. Zemplén. *Berichte*, April 6, pp. 923-930.

Contribution to the study of the oxidative degradation of glucose. II. The oxidation of pyroracemic acid. B. Bleyer and W. Braun. *Biochem. Z.*, April 7, pp. 310–314.

Miscellaneous

ANALYSIS.—The quantitative determination of acetaldehyde in very dilute solutions. S. L. Langedick. *Rec. Trav. Chim. Pays-Bas*, April 15, pp. 218–224.

Note on the analysis and preparation of some cadmium sulphides. P. Hulot. *Bull Soc. Chim.*, pp. 313–316.

GENERAL.—On the elements of atomic number 43, 61, 75, 85, and 87. Herszfinkiel. *Comptes Rend.*, April 20, pp. 968–970.

On the constitution of mixed crystals. G. Lunde. *Bull. Soc. Chim.*, March, pp. 304–308.

The photochemical reactions of colouring matters. I. The reversible photochemical reaction of Malachite Green. T. Ariga. *Bull. Chem. Soc. Japan*, March, pp. 65–73.

The optical resolution of α-sulphonyldipropionic acid. H. J. Backer and W. Meijer. *Rec. Trav. Chim. Pays-Bas*, April 15, pp. 212–217.

ORGANIC.—Halogenated proteins. VII. Chlorofibrin. A. J. J. Vandervelde. *Rec. Trav. Chim. Pays-Bas*, March 15, pp. 133–136.

The action of trichloroacetic acid on phenols. J. van. Alphen. *Rec. Trav. Chim. Pays-Bas*, March 15, pp. 144–149.

Some bicyclohexyl derivatives. H. Hartmann. *Rec. Trav. Chim. Pays-Bays*, March 15, pp. 150–153.

The constitution of thiocyanoaniline and some of its derivatives. J. W. Dienske. *Rec. Trav. Chim. Pays-Bas*, March 15, pp. 154–157.

The constitution of humic acid. Hérissey and J. Cheymol. *J. Pharm. Chim.*, February 16, pp. 145–147.

The condensation of phenolic aldehydes and their ethers with methyl ethyl ketone. K. Iwamato. *Bull. Chem. Soc. Japan*, February, pp. 51–57.

Patent Literature

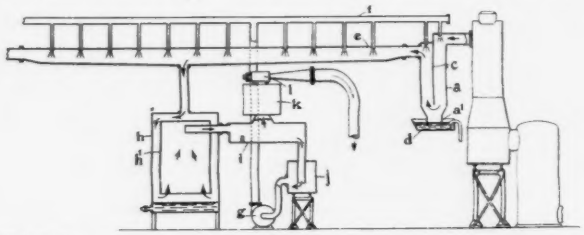
The following information is prepared from published Patent Specifications and from the Illustrated Official Journal (Patents) by permission of the Controller to H.M. Stationery Office. Printed copies of full Patent Specifications accepted may be obtained from the Patent Office, 25, Southampton Buildings, London, W.C.2, at 1s. each.

Abstracts of Complete Specifications

268,080. Distillation of Coal and other Solid Carbonaceous Substances. E. R. Sutcliffe, 93, Church Street, Leigh, Lancs. Application dates, September 28, 1925, and June 28, 1926.

The coal or other substance is distilled in a retort heated internally by steam, or steam and gas. The heat from the gas and vapour in the retort is used for raising the temperature of water or liquor to boiling point under reduced pressure, the heated water being then evaporated and the steam used for distillation.

A scrubber *a* of spray type has a vertical partition *c*, and its lower end *a'* dips into a tank *d*, which drains into the



268.080

ammonia liquor tank. The gas and vapour pass through the scrubber to the gas main *e* and hot water is sprayed into the scrubber and the main *e* from a pipe *f*. The greater part of the hot water or liquor is circulated by a pump *g* to the pipe *f* and returns from the main *e* to a closed settling tank *h*. The temperature of the water entering this tank is about 210° F. The hot water flows over an inverted cylinder *h'*, and the tar collects at the bottom of the tank while the hot water passes up the cylinder *h'* to an evaporator *i*, and thence to the pump *j* and pipe *g*. Steam is drawn off through an anti-priming vessel *k* to a high-pressure steam ejector *l*, in which highly superheated steam is employed. The temperature of the hot water entering the pump is about 190° F., and on entering the gas main about 180° F. Steam is produced in the evaporator under the low ejector pressure of 7–10 lb. absolute. The apparatus gives an exceptionally high yield of by-products.

268,420. Concentrated Solutions of Alkali Cyanides, Process for the Production of. Deutsche Gold- und Silber-Scheideanstalt vorm. Roessler and K. Andrich, 7–9, Weissfrauenstrasse, Frankfort-on-Main, Germany. Application date, December 23, 1925.

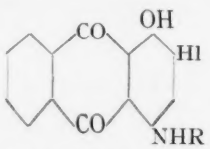
Specification No. 174,364 (see The Chemical Age, Vol. VI, p. 433) describes the treatment of a mixture of lime and alkali solution with hydrocyanic acid gas to obtain an alkali cyanide solution and calcium sulphate precipitate. It has been found that in this process a very voluminous double salt of an alkali metal sulphate and calcium sulphate is formed and further absorption of hydrocyanic acid is incomplete, so that a concentrated solution of alkali cyanide is not possible. In this invention, the formation of this double salt is prevented by employing a mixture of the full quantity of lime and only 26 to 28 per cent. of the total sodium sulphate necessary to give the final sodium cyanide concentration. As soon as the total quantity of sodium sulphate is converted into sodium cyanide, a fresh quantity of sodium sulphate is added continuously or intermittently. The addition of hydrocyanic acid is preferably continued after all the sodium sulphate present has been converted, before a further quantity of sodium sulphate is added. Some calcium cyanide is then produced, which is converted into sodium cyanide, and a further addition of sodium sulphate is made. In this manner a concentration of sodium cyanide of 35 to 45 per cent. can be obtained without precipitation of the double salt and without restriction as to any particular temperature. This process can be combined with that of 245,152 (see The Chemical Age, Vol. XIV, p. 234).

268,426. High Pressure System for Electrolytic Processes, more especially for the Production of Hydrogen and Oxygen. J. E. Noeggerath, 12, Burggrafenstrasse, Berlin. Application date, December 30, 1925.

The electrolytic vessels used in this apparatus are designed so that part or all of the spaces which contain electrolyte are so reduced in area as to be only sufficient to accommodate the gas bubbles passing through them when they are at high pressure. To reduce the space containing electrolyte the walls enclosing these spaces are utilised in conducting the current. The separating wall or partition used in these cells may be of asbestos cord wound round an openwork core so that it is capable of deformation under pressure.

268,542. Anthraquinone Dyestuffs. British Dyestuffs Corporation, Ltd., 70, Spring Gardens, Manchester, and W. W. Tatum, Crumpsall Vale Chemical Works, Blackley, Manchester. Application date, March 19, 1926.

1-hydroxy-2-sulpho 4-arylamino-anthraquinones are obtained by the action of metallic sulphites on 1-hydroxy-2-halogen-4-arylamino-anthraquinones of the general formula



where R = aryl and Hl = halogen. In an example, 1-hydroxy-2-4-dichlor-anthraquinone is heated with *p*-toluidine, and the resulting 1-hydroxy-2-chlor-4-tolylamino-anthraquinone is dissolved in phenol and heated in an autoclave with sodium sulphite. The phenol is steamed off, and the liquor filtered and the colour isolated by adding salt.

Note.—Abstracts of the following specifications, which are now accepted, appeared in The Chemical Age when they became open to inspection under the International Convention: 240,840 (F. Pollak), relating to treatment of condensation products of carbamide or its derivatives with formaldehyde, see Vol. XIII, p. 606; 245,759 (Chemical Works, formerly Sandoz), relating to increasing the affinity of animal fibres for dyestuffs, see Vol. XIV, p. 255; 246,834 (Bakelite Ges.), relating to phenol aldehyde resins, see Vol. XIV, p. 361; 247,227–8 (Azogens Soc. Anon. per la Fabbricazione Dell'Ammoniaca Sintetica E. Prodotti Derivati and C. Toniolo), relating to ammonium nitrate, see Vol. XIV, p. 386; 252,017 (H. G. E. Cornelius), relating to iron and other metals with a very low percentage of carbon, see Vol. XV, p. 15 (Metallurgical Section); 255,042 (Compagnie de Produits Chimiques et Electro-Metallurgiques Alais, Froges, et Camargue), relating to anhydrous magnesium chloride, see Vol. XV, p. 279; 259,201 (I. G. Farbenindustrie Akt.-Ges.), relating to regeneration of catalysts used in the production of phosphorus pentoxide, see Vol. XV, p. 548; 260,568 (F. Bensa), relating to dinitro products of perylene and its halogen derivatives, see Vol. XVI, p. 30.

International Specifications not yet Accepted

266,388. Dyes and Intermediate Products. I. G. Farbenindustrie Akt.-Ges., Frankfort-on-Main, Germany. International Convention date, February 22, 1926.

Cyclic diamines or polyamines are converted into di- or polysulphamic acids, and the latter are treated with nitrous acid sufficient to diazotise one amino group. One sulpho group is eliminated, and diazo-sulphamic acids are formed, which may be coupled with β-naphthol to obtain dyestuffs. The sulpho groups can be split off from the dyestuffs to obtain azo dyestuffs which may be regarded as derived from partially diazotised diamines or polyamines. Examples are given in which *o*-, and *p*-phenylene-diamine, *m*-toluylene-diamine, benzidine, *o*-dianisidine, 1:2-, 1:5-, and 1:8-diamino-naphthalene, and 1:2:4-triaminobenzene are heated with

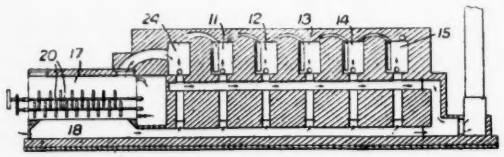
chlorsulphonic acid and pyridine to obtain di-, or poly-sulphamic acids, which are converted into the diazo-sulphamic acids and coupled with β-naphthol.

266,389. UREA-FORMALDEHYDE CONDENSATION PRODUCTS. F. Pollak, 20, Langegasse, Vienna. International Convention date, October 1, 1924.

Urea-formaldehyde condensation products in powdered form are mixed with solvents specified in Specification 240,840 (see THE CHEMICAL AGE, Vol. XIII, p. 606), to convert them into homogeneous masses by the action of heat and pressure. The solvents can be replaced by the viscous soluble initial product of condensation which has a swelling action on the final products.

267,074. DISTILLING COAL TAR, ETC. A. Meiro, 50, Rue Dupont, Brussels. International Convention date, March 2, 1926.

Coal tar or tar oil is dehydrated and preheated, and then supplied to a still 17 heated by a furnace 18, and having rotary



267,074

agitators 18. The vapours pass through a liquid separator 24 and then to dephlegmators 11–15 where the fractions are condensed. The gases then pass through water to remove ammonia, and lime water to remove sulphuretted hydrogen, and then through layers of copper, iron, and wood shavings. The gases may be used to heat the still.

267,095. LOW TEMPERATURE DISTILLATION OF COAL. International Combustion Engineering Corporation, 43, Broad Street, New York. (Assignees of W. Runge, 136, East Arlington Avenue, East Orange, N.J., U.S.A.) International Convention date, March 4, 1926.

Powdered coal is fed through pipes 1 to a retort A where it descends through a current of hot gas from a pipe 4, and the

FIG. 1.

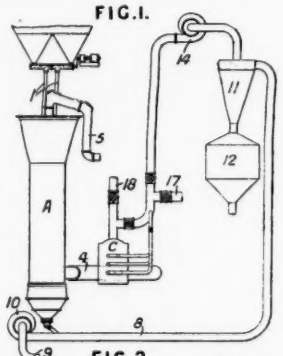
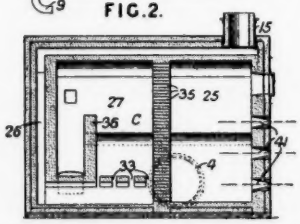


FIG. 2.



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gas with distillates is then drawn off through a pipe 5 to a by-product recovery plant and gas holder. The coke is transported through a conduit 8 by gas from a fan 10 and thence to a cyclone separator 11 and receiver 12. The heated gas passes through a fan 14 to a preheater C where it is mixed with hot combustion products and returns to the retort. Air or non-combustible gas may be supplied through pipes 17, 18, to regulate the temperature. The preheater C has a combustion chamber 25 heated by burners 41, and the hot gases pass through openings 35 to a chamber 27 where they are mixed with gases which enter through pipes 15, 26, and the mixed gases pass to an outlet 4.

266,684. ACETIC ACID. Soc. Chimique des Usines du Rhône, 21, Rue Jean-Goujon, Paris. International Convention date, February 26, 1926.

Dilute acetic acid obtained in the manufacture of cellulose acetate is treated with acid substances, such as sulphuric acid at a raised temperature for some hours, to render the cellulose compounds soluble in water and prevent their precipitation while the acetic acid is being removed.

266,689. PURIFYING NITROGEN AND HYDROGEN. Norsk Hydro-Elektrisk Kvaelstofaktieselskab, 7, Solligatan, Oslo. International Convention date, February 25, 1926.

Nitrogen-hydrogen mixtures for use in the synthesis of ammonia are purified by means of liquid ammonia suspensions of compounds such as calcium nitrate and other hygroscopic salts, other metal nitrates, ammonium nitrate, metal chlorides, or cyanides, which combine with the impurities. The synthesised ammonia may be converted into calcium or ammonium nitrate which may be used for the purifying, without affecting its value as a fertiliser.

LATEST NOTIFICATIONS.

269,498. Process for the manufacture of new alkaloid salts of camphoric acid. Chemische Fabrik auf Actien (vorm. E. Schering). April 15, 1926.

269,499. Process and apparatus for the cracking of oils. Seelig, S. April 16, 1926.

269,521. Production of liquid hydrocarbons or their derivatives. I. G. Farbenindustrie Akt.-Ges. April 14, 1926.

269,522. Manufacture and production of dyestuffs containing chromium. I. G. Farbenindustrie Akt.-Ges. April 15, 1926.

269,529. Manufacture of cellulose derivatives and the products thereof, and articles or objects made with same. British Celanese, Ltd. April 14, 1926.

269,530. Manufacture of cellulose derivatives and the products thereof, and articles or objects made with same. British Celanese, Ltd. April 14, 1926.

269,531. Manufacture of cellulose derivatives and the products thereof, and articles or objects made with same. British Celanese, Ltd. April 16, 1926.

269,543. Treatment of precipitated acetyl cellulose. Verein für Chemische Industrie Akt.-Ges. April 15, 1926.

269,546. Recovery of sulphur from solutions of ammonium polysulphides. I. G. Farbenindustrie Akt.-Ges. April 16, 1926.

269,547. Manufacture and production of unsaturated gaseous hydrocarbons and hydrogen. I. G. Farbenindustrie Akt.-Ges. April 15, 1926.

269,556. Manufacture of acetaldehyde. Rubber Service Laboratories Co. April 12, 1926.

269,582. Manufacture of diazosulphamic acids of the cyclic series. I. G. Farbenindustrie Akt.-Ges. April 15, 1926.

269,583. Manufacture of compounds of aromatic paradiamines with sulphur dioxide. I. G. Farbenindustrie Akt.-Ges. April 17, 1926.

269,593. Manufacture and production of valuable products from coal tars, mineral oils, and the like. I. G. Farbenindustrie Akt.-Ges. April 16, 1926.

269,594. Manufacture and production of fuel gas. I. G. Farbenindustrie Akt.-Ges. April 19, 1926.

269,878. Process of treating lithium-containing silicates by means of neutral alkali salts. Metallbank und Metallurgische Ges. Akt.-Ges. April 22, 1926.

269,908. Process for the recovery of phosphorus and hydrogenated compounds thereof. Urbain Corporation. April 21, 1926.

269,917. Dyeing or printing animal and vegetable fibres with mordant dyestuffs. Chemische Fabrik Milch Akt.-Ges., and Lindner, Dr. K. January 23, 1925.

269,918. Manufacture of dyestuffs. I. G. Farbenindustrie Akt.-Ges. April 22, 1926.

269,921. Process for increasing the richness of superphosphates. Gaillard, A. April 22, 1926.

269,934. Process for dyeing and printing cellulose esters and cellulose ethers. I. G. Farbenindustrie Akt.-Ges. April 23, 1926.

269,942. Manufacture of wetting agents. I. G. Farbenindustrie Akt.-Ges. April 23, 1926.

269,947. Process for the production of molybdic and tungstic acid. Metallwerk Plansee Ges. April 26, 1926.

269,950. Process for making dihydroxyacetone. I. G. Farbenindustrie Akt.-Ges. April 26, 1926.

Specifications Accepted with Date of Application

247,229. Ammonium nitrate solutions, Process for concentrating. Azogeno Soc. Anon. per la Fabricazione Dell' Ammoniaca Sintetica E. Prodotti Derivati, and C. Toniolo. February 7, 1925.

248,360. Metallic oxides, Treatment of. Aluminum Co. of America. March 2, 1925.

251,267. Basic chromium salts, Manufacture of. I. G. Farbenindustrie Akt.-Ges. April 24, 1925.

256,193. Electric furnaces for the manufacture of aluminium. E. R. Lauber. July 30, 1925.

261,693. Tricalcium saccharate, Processes for obtaining. J. Steffen, jun. (deceased). November 17, 1925.

265,141. Persulphuric acid and its soluble salts from sulphuric acid by electrolysis. Oesterreichische Chemische Werke Ges. January 28, 1926.

264,116. Electrolytic refining of copper. Siemens and Halske Akt.-Ges. January 6, 1926.

269,235. Mixed fertilisers containing nitrates, Manufacture and production of. J. Y. Johnson. (*I. G. Farbenindustrie Akt.-Ges.*) January 7, 1926.

269,243. Compositions of matter containing organic mercury compounds. E. C. R. Marks. (*E. I. du Pont de Nemours and Co.*) January 12, 1926.

269,253. Refining brass and bronze secondary metals and their residues. T. Lewin. January 15, 1926.

269,242. Benzol, petrol, and the like, Purification of. K. Cox and P. J. McDermott. January 12, 1926.

269,302. Aromatic derivatives of formamide, Manufacture and production of. J. Y. Johnson. (*I. G. Farbenindustrie Akt.-Ges.*) March 13, 1926.

269,321. Recovery of zinc from the dross obtained in melting zinc during refining. E. C. R. Marks. (*American Smelting and Refining Co.*) April 7, 1926.

269,324. Zinciferous materials, Treatment of. P. C. Rushen. (*New Jersey Zinc Co.*) April 10, 1926.

269,345. Pure iron, Manufacture and production of. J. Y. Johnson. (*I. G. Farbenindustrie Akt.-Ges.*) May 10, 1926.

Applications for Patents

Abraham, A. Production of material containing thymol and polymerised formaldehyde. 10,528. April 19.

Alcock, H. E., B. Laporte, Ltd., and Weber, I. E. Manufacture of white pigment. 11,286. April 27.

Ashcroft, E. A. Extracting alumina, potash, lime, etc., from silicates, etc. 11,350. April 28.

Babcock and Wilcox, Ltd. (Babcock and Wilcox Co.). Apparatus for treating boiler feed water. 10,447. April 19.

Babcock and Wilcox, Ltd. (Babcock and Wilcox Co.). Apparatus for spraying liquids. 10,459. April 19.

Baddiley, J., Brightman, R., British Dyestuffs Corporation, Ltd., and Chorley, J. B. P. Dyes. 11,372. April 28.

Barbou, P. A., and Delvaille, R. Treating residual liquors from treatment of cellulose material. 10,704. April 21. (France, April 21, 1926.)

Barton, T. H. Chemical fire extinguishers. 10,964. April 25.

Brightman, R., British Dyestuffs Corporation, Ltd., and Chorley, P. Azo dyestuffs. 10,858, 10,859. April 22.

British Dyestuffs Corporation, Ltd., and Chapman, E. Preparation of foams for fire extinction. 11,020. April 25.

British Dyestuffs Corporation, Ltd., and Shepherdson, A. Manufacture, etc., of aroylating agents. 11,146. April 26.

British Dyestuffs Corporation, Ltd. Removal of free chlorine acid bromine from fluid mixtures. 11,256. April 27.

Brunler, O. Combustion apparatus. 10,999. April 25.

Brunler, O. Apparatus for evaporation of liquids. 11,000. April 25.

Carpmael, W., and I. G. Farbenindustrie Akt.-Ges. Increasing fastness to light of dyestuffs. 10,861. April 22.

Carpmael, W., and I. G. Farbenindustrie Akt.-Ges. Process for dressing artificial silk. 11,178. April 26.

Carpmael, W., and I. G. Farbenindustrie Akt.-Ges. Manufacture of azo dyestuffs. 11,179. April 26.

Chemische Fabrik Milch Akt.-Ges., and Lindner, K. Dyeing fibres. 10,818. April 22. (Germany, January 23, 1925.)

Coles, S. O. Cowper-. Producing white lead. 11,313. April 28.

Commercial Solvents Corporation. Catalysts for synthetic methanol production. 10,646. April 20. (United States, June 21, 1926.)

Commercial Solvents Corporation. Catalysts for synthetic methanol production. 10,647. April 20. (United States, May 26, 1926.)

Commercial Solvents Corporation. Catalysts for synthetic methanol production. 10,648. April 20. United States, October 25, 1926.)

Courtaulds, Ltd. Manufacture of artificial filaments, etc. 10,736. April 21.

Craig, T. J. I., Kirkham, A., and P. Spence and Sons, Ltd. Treatment of siliceous materials. 11,309. April 28.

Craig, T. J. I. Preparation of silica from silicate so[illegible]. 11,310. April 28.

Dehn, F. B., and Newport Co. Making N-dihydro [illegible]1 anthraquinone azine. 11,017. April 25.

Etablissements Poulenc Frères and Fourneau, E[illegible] Manufacture of ortho-chloro-para-amino glycineamide phen[illegible]arsinic acid. 11,080. April 25. (France, October 21, 1926.)

Gaillard, A. Process for obtaining superphosphates. 11,384. April 28. (Spain, October 25, 1926.)

Haddan, R., and Stackable, E. R. Production of ammoniated superphosphate. 10,655. April 20.

I. G. Farbenindustrie Akt.-Ges., and Johnson, J. Y. Production of coloured brushwork lacquers. 10,482. April 19

I. G. Farbenindustrie Akt.-Ges., and Imray, O. Y. Manufacture of cellulose esters. 10,499. April 19.

I. G. Farbenindustrie Akt.-Ges., and Johnson, J. Y. Production of hydrocarbons of low boiling point. 10,735. Apri 21.

I. G. Farbenindustrie Akt.-Ges. Manufacture of valuable products from coal, etc. 10,480. April 19. (Germany, April 16, 1926.)

I. G. Farbenindustrie Akt.-Ges. Production of fuel gas. 10,481. April 19. (Germany, April 19, 1926.)

I. G. Farbenindustrie Akt.-Ges. Manufacture of dyestuffs. 10,819. April 22. (Germany, April 22, 1926.)

I. G. Farbenindustrie Akt.-Ges. Dyeing and printing cellulose esters, etc. 10,952. April 23. (Germany, April 23, 1926.)

I. G. Farbenindustrie Akt.-Ges. and Johnson, J. Y. Production of alkali metal nitrates. 11,051. April 25.

I. G. Farbenindustrie Akt.-Ges. and Imray, O. Y. Manufacture of cyclic ketones of the aromatic series. 11,187. April 26.

I. G. Farbenindustrie Akt.-Ges. and Johnson, J. Y. Production of cellulose ester resin lacquers. 11,480. April 29.

I. G. Farbenindustrie Akt.-Ges. and Johnson, J. Y. Production of coloured coating lacquers. 11,481. April 29.

I. G. Farbenindustrie Akt.-Ges. and Johnson, J. Y. Production of alkali metal nitrates. 11,482. April 29.

I. G. Farbenindustrie Akt.-Ges. Producing solid materials in state of fine dispersion. 11,050. April 25. (Germany, April 28, 1926.)

I. G. Farbenindustrie Akt.-Ges. Production of orange vat dyestuffs. 11,052. (Germany, November 15, 1926.)

I. G. Farbenindustrie Akt.-Ges. Manufacture of wetting agents. 11,061. April 25. (Germany, April 23, 1926.)

I. G. Farbenindustrie Akt.-Ges. Process for making dihydroxyacetone. 11,186. April 26. (Germany, April 26, 1926.)

I. G. Farbenindustrie Akt.-Ges. Dyeing textile goods. 11,287. April 27. (Germany, April 27, 1926.)

I. G. Farbenindustrie Akt.-Ges. Manufacture of mordant dyestuffs. 11,288. April 27. (Germany, April 27, 1926.)

I. G. Farbenindustrie Akt.-Ges. Conversion of hydrocarbons. 11,347, 11,348. April 28. (Germany, May 1, 1926.)

I. G. Farbenindustrie Akt.-Ges. Dyeing. 11,499. April 29. (Germany, April 29, 1926.)

I. G. Farbenindustrie Akt.-Ges. Treatment of fibrous materials, etc. 11,567, 11,568. April 30. (Germany, January 21, 1925.)

I. G. Farbenindustrie Akt.-Ges. Conversion of coaly materials into liquid products. 11,569. April 30. (Germany, May 5, 1926.)

I. G. Farbenindustrie Akt.-Ges. Holder for flat films. 11,606. April 30. (Germany, May 5, 1926.)

James, R. W., and Merck and Co. Colloidal iodine. 10,586. April 20.

Kemel Laboratories Co., Inc., and Marks, E. C. R. Production of beryllium. 10,630. April 20.

Legerlotz, H. Oxy-phenyl-alkyl-ketones. 10,871. April 22.

Liljenroth, F. G. Producing soluble phosphates. 10,615. April 20. (Sweden, February 15.)

Liljenroth, F. Method of treating material containing magnesium. 11,138. April 26. (Sweden, January 15.)

Liljenroth, F. G. Treating raw phosphate, etc., containing insoluble calcium phosphate. 11,007. April 25. (Sweden, December 31, 1926.)

Liljenroth, F. G. Method of treating raw phosphate, etc. 11,096. April 26. (Sweden, January 8.)

Low Temperature Carbonisation, Ltd., and Parker, C. H. Distillation retorts. 11,295. April 27.

Metallwerk Plansee Ges. Production of molybdic and tungstic acid. 11,157. April 26. (Germany, April 26, 1926.)

Nobel's Explosives Co., Ltd. Cellulose products. 10,500. April 19.

Scottish Dyes, Ltd., Smith, W., and Thomas, J. Production of dyestuff intermediates. 10,501. April 19.

Soc. of Chemical Industry in Basle. Manufacture of derivatives of substituted quinoline carboxylic acids. 11,603. April 30. (Switzerland, April 30, 1926.)

Soc. des Produits Chimiques de Clamecy. Distillation of wood. 10,865. April 22. (France, April 22, 1926.)

Stephens, C. V., and Vautin, C. T. J. Manufacture of tin-iodine compounds. 10,866. April 22.

Weekly Prices of British Chemical Products

The price[s] and comments given below respecting British chemical products are based on direct information supplied by the British manufactu[rers] concerned. Unless otherwise qualified, the figures quoted apply to fair quantities, net and naked at makers' works.

General Heavy Chemicals

ACID ACETIC, 40% TECH.—£19 per ton.

ACID BORIC, COMMERCIAL.—Crystal, £34 per ton; powder, £36 per ton.

ACID HYDROCHLORIC.—3s. 9d. to 6s. per carboy d/d, according to purity, strength, and locality.

ACID NITRIC, 80° Tw.—£21 10s. to £27 per ton, makers' works, according to district and quality.

ACID SULPHURIC.—Average National prices f.o.r. makers' works, with slight variations up and down owing to local considerations: 140° Tw., Crude Acid, 60s. per ton. 168° Tw., Arsenical, £5 10s. per ton. 168° Tw., Non-arsenical, £6 15s. per ton.

AMMONIA ALKALI.—£6 15s. per ton f.o.r. Special terms for contracts.

BISULPHITE OF LIME.—£7 10s. per ton, packages extra, returnable.

BLEACHING POWDER.—Spot, £9 10s. per ton d/d; Contract, £8 10s. per ton d/d, 4-ton lots.

BORAX, COMMERCIAL.—Crystals, £19 10s. to £20 per ton; granulated, £19 per ton; powder, £21 per ton. (Packed in 2-cwt. bags, carriage paid any station in Great Britain.)

CALCIUM CHLORIDE (SOLID).—£5 to £5 5s. per ton d/d carr. paid.

COPPER SULPHATE.—£25 to £25 10s. per ton.

METHYLATED SPIRIT 61 O.P.—Industrial, 2s. 5d. to 2s. 10d. per gall.; pyridinised industrial, 2s. 7d. to 3s. per gall.; mineralised, 3s. 6d. to 3s. 10d. per gall.; 64 O.P., 1d. extra in all cases; prices according to quantity.

NICKEL SULPHATE.—£38 per ton d/d.

NICKEL AMMONIA SULPHATE.—£38 per ton d/d.

POTASH CAUSTIC.—£30 to £33 per ton.

POTASSIUM BICHROMATE.—4½d. per lb.

POTASSIUM CHLORATE.—3¾d. per lb., ex wharf, London, in cwt. kegs.

SALAMMONIAC.—£45 to £50 per ton d/d. Chloride of ammonia, £37 to £45 per ton, carr. paid.

SALT CAKE.—£3 15s. to £4 per ton d/d. In bulk.

SODA CAUSTIC, SOLID.—Spot lots delivered, £15 2s. 6d. to £18 per ton, according to strength; 20s. less for contracts.

SODA CRYSTALS.—£5 to £5 5s. per ton, ex railway depots or ports.

SODIUM ACETATE 97/98%.—£21 per ton.

SODIUM BICARBONATE.—£10 10s. per ton, carr. paid.

SODIUM BICHROMATE.—3½d. per lb.

SODIUM BISULPHITE POWDER, 60/62%.—£17 10s. per ton for home market, 1-cwt. drums included.

SODIUM CHLORATE.—2¾d. per lb.

SODIUM NITRITE, 100% BASIS.—£27 per ton d/d.

SODIUM PHOSPHATE.—£14 per ton, f.o.r. London, casks free.

SODIUM SULPHATE (GLAUBER SALTS).—£3 12s. 6d. per ton.

SODIUM SULPHIDE CONC. SOLID, 60/65.—£13 5s. per ton d/d. Contract, £13. Carr. paid.

SODIUM SULPHIDE CRYSTALS.—Spot, £8 12s. 6d. per ton d/d. Contract, £8 10s. Carr. paid.

SODIUM SULPHITE, PEA CRYSTALS.—£14 per ton f.o.r. London, 1-cwt. kegs included.

Coal Tar Products

ACID CARBOLIC CRYSTALS.—8½ to 9d. per lb. Crude 60's, 2s. 6d. to 2s. 8d. per gall.

ACID CRESYLIC 99/100.—2s. 8d. to 2s. 9d. per gall. Steady. 97/99.—2s. 1½d. to 2s. 6d. per gall. Pale, 95%, 2s. to 2s. 1½d. per gall. Dark, 1s. 9d. to 1s. 10d. per gall.

ANTHRACENE.—A quality, 2½d. to 3d. per unit. 40%, 3d. per unit.

ANTHRACENE OIL, STRAINED.—8d. to 8½d. per gall. Unstrained, 7½d. to 8d. per gall.; both according to gravity.

BENZOLE.—Crude 65's, 1s. 0¾d. to 1s. 1¾d. per gall., ex works in tank wagons. Standard Motor, 1s. 9d. to 2s. 2d. per gall., ex works in tank wagons. Pure, 1s. 8d. to 2s. 6d. per gall., ex works in tank wagons.

TOLUOLE.—90%, 1s. 9d. to 2s. 0½d. per gall. Firm. Pure, 1s. 10d. to 2s. 3½d. per gall.

XYLOL.—2s. to 2s. 6d. per gall. Pure, 3s. per gall.

CREOSOTE.—Cresylic, 20/24%, 10½d. per gall. Standard specification, 6¾d. to 9d.; middle oil, 7½d. to 8d. per gall. Heavy, 8½d. to 9d. per gall. Salty, 7d. per gall. less 1¼%.

NAPHTHA.—Crude, 8d. to 9d. per gall. according to quality. Solvent 90/160, 1s. 6d. to 1s. 11d. per gall. Solvent 95/160, 1s. 6d. to 1s. 7d. per gall. Solvent 90/190, 1s. 1½d. to 1s. 4d. per gall.

NAPHTHALENE CRUDE.—Drained Creosote Salts, £7 10s. per ton. Whizzed or hot pressed, £8 10s. to £9 per ton.

NAPHTHALENE.—Crystals, £11 10s. to £13 10s. per ton. Quiet. Flaked, £12 10s. per ton, according to districts.

PITCH.—Medium soft, 75s. to 80s. per ton, according to district; nominal.

PYRIDINE.—90/140, 8s. 6d. to 13s. per gall. Nominal. 90/180, 5s. per gall. Heavy, 5s. to 8s. per gall.

Intermediates and Dyes

In the following list of Intermediates delivered prices include packages except where otherwise stated:

ACID AMIDONAPHTHOL DISULPHO (1-8-2-4).—10s. 9d. per lb.

ACID ANTHRANILIC.—6s. per lb. 100%.

ACID BENZOIC.—1s. 9d. per lb.

ACID GAMMA.—4s. 9d. per lb.

ACID H.—3s. 3d. per lb. 100% basis d/d.

ACID NAPHTHIONIC.—1s. 6d. per lb. 100% basis d/d.

ACID NEVILLE AND WINTHER.—4s. 9d. per lb. 100% basis d/d.

ACID SULPHANILIC.—9d. per lb. 100% basis d/d.

ANILINE OIL.—7d. per lb. naked at works.

ANILINE SALTS.—7d. per lb. naked at works.

BENZALDEHYDE.—2s. 3d. per lb.

BENZIDINE BASE.—3s. 3d. per lb. 100% basis d/d.

BENZOIC ACID.—1s. 8½d. per lb.

o-CRESOL 29/31° C.—4d. per lb. Fair inquiry.

m-CRESOL 98/100%.—2s. 8¾d. per lb. Only limited inquiry.

p-CRESOL 32/34° C.—2s. 8¾d. per lb. Only limited inquiry.

DICHLORANILINE.—2s. 3d. per lb.

DIMETHYLANILINE.—2s. per lb. d/d. Drums extra.

DINITROBENZENE.—9d. per lb. naked at works. £75 per ton.

DINITROCHLORBENZENE.—£84 per ton d/d.

DINITROTOLUENE.—48/50° C. 8d. per lb. naked at works. 66/68° C. 9d. per lb. naked at works.

DIPHENYLAMINE.—2s. 10d. per lb. d/d.

a-NAPHTHOL.—2s. per lb. d/d.

B-NAPHTHOL.—11d. to 1s. per lb. d/d.

a-NAPHTHYLAMINE.—1s. 3d. per lb. d/d.

B-NAPHTHYLAMINE.—3s. per lb. d/d.

o-NITRANILINE.—5s. 9d. per lb.

m-NITRANILINE.—3s. per lb. d/d.

p-NITRANILINE.—1s. 9d. per lb. d/d.

NITROBENZENE.—6d. per lb. naked at works.

NITRONAPHTHALENE.—1s. 3d. per lb. d/d.

R. SALT.—2s. 2d. per lb. 100% basis d/d.

SODIUM NAPHTHIONATE.—1s. 8½d. per lb. 100% basis d/d.

o-TOLUIDINE.—8d. per lb. naked at works.

p-TOLUIDINE.—2s. 2d. per lb. naked at works.

m-XYLIDINE ACETATE.—2s. 11d. per lb. 100%.

Wood Distillation Products

ACETATE OF LIME.—Brown, £9 5s. per ton. Grey, £15 10s. per ton. Liquor, 9d. per gall. 32° Tw.

CHARCOAL.—£6 15s. to £10 per ton, according to grade and locality.

IRON LIQUOR.—1s. 3d. per gall. 32° Tw. 1s. per gall. 24° Tw.

RED LIQUOR.—9d. to 1s. per gall. 16° Tw.

WOOD CREOSOTE.—1s. 9d. per gall. Unrefined.

WOOD NAPHTHA, MISCIBLE.—4s. to 4s. 3d. per gall., 60% O.P. Solvent, 4s. 3d. per gall., 40% O.P.

WOOD TAR.—£4 to £5 10s. per ton and upwards, according to grade.

BROWN SUGAR OF LEAD.—£40 10s. per ton.

Rubber Chemicals

ANTIMONY SULPHIDE.—Golden, 6½d. to 1s. 5½d. per lb., according to quality; Crimson, 1s. 4d. to 1s. 6d. per lb., according to quality.

ARSENIC SULPHIDE, YELLOW.—1s. 9d. per lb.

BARYTES.—£3 10s. to £6 15s. per ton, according to quality.

CADMIUM SULPHIDE.—2s. 6d. to 2s. 9d. per lb.

CARBON BISULPHIDE.—£20 to £25 per ton, according to quantity.

CARBON BLACK.—5½d. per lb., ex wharf.

CARBON TETRACHLORIDE.—£45 to £50 per ton, according to quantity, drums extra.

CHROMIUM OXIDE, GREEN.—1s. 1d. per lb.

DIPHENYLGUANIDINE.—3s. 9d. per lb.

INDIARUBBER SUBSTITUTES, WHITE AND DARK.—5¾d. to 6¾d. per lb.

LAMP BLACK.—£35 per ton, barrels free.

LEAD HYPOSULPHITE.—9d. per lb.

LITHOPONE, 30%.—£22 10s. per ton.

MINERAL RUBBER "RUBPRON."—£13 12s. 6d. per ton, f.o.r. London.

SULPHUR.—£9 to £11 per ton, according to quality.

SULPHUR CHLORIDE.—4d. to 7d. per lb., carboys extra.

SULPHUR PRECIP. B.P.—£47 10s. to £50 per ton.

THIOCARBAMIDE.—2s. 6d. to 2s. 9d. per lb. carriage paid.

THIOCARBANILIDE.—2s. 1d. to 2s. 3d. per lb.

VERMILION, PALE OR DEEP.—6s. to 6s. 3d. per lb.

ZINC SULPHIDE.—1s. per lb.

Pharmaceutical and Photographic Chemicals

ACID, ACETIC, PURE, 80%.—£39 per ton ex wharf London in glass containers.

ACID, ACETYL SALICYLIC.—2s. 5d. to 2s. 6d. per lb. Firm and brisk.

ACID, BENZOIC B.P.—2s. to 2s. 3d. per lb., according to quantity. Solely ex Gum, 1s. 3d. per oz.; 500 oz. lots, 1s. per oz.

ACID, BORIC B.P.—Crystal, £41 per ton; powder, £45 per ton. Carriage paid any station in Great Britain, in ton lots.

ACID, CAMPHORIC.—19s. to 21s. per lb.

ACID, CITRIC.—1s. 5⅛d. to 1s. 6¼d. per lb., less 5%. Firm.

ACID, GALLIC.—2s. 8d. per lb. for pure crystal, in cwt. lots.

ACID, PYROGALLIC, CRYSTALS.—7s. 3d. per lb. Resublimed, 8s. 3d. per lb.

ACID, SALICYLIC, B.P.—1s. 4d. to 1s. 5d. per lb. Technical.—11¾d. to 1s. per lb. Both in good demand.

ACID, TANNIC B.P.—2s. 9d. to 2s. 11d. per lb.

ACID, TARTARIC.—1s. 2¾d. per lb., less 5%. Firm market.

AMIDOL.—9s. per lb., d/d.

ACETANILIDE.—1s. 6d. to 1s. 8d. per lb. for quantities.

AMIDOPYRIN.—8s 6d. per lb.

AMMONIUM BENZOATE.—3s. 3d. to 3s. 9d. per lb., according to quantity.

AMMONIUM CARBONATE B.P.—£37 per ton. Powder, £39 per ton in 5 cwt. casks. Resublimated: lump, 1s. per lb.; powder, 1s. 3d. per lb.

ATROPINE SULPHATE.—11s. per oz. for English make.

BARBITONE.—6s. 6d. per lb.

BENZONAPHTHOL.—3s. 3d. per lb. spot.

BISMUTH CARBONATE.—9s. 9d. to 10s. per lb.

BISMUTH CITRATE.—9s. 6d. to 9s. 9d. per lb.

BISMUTH SALICYLATE.—8s. 9d. to 9s. per lb.

BISMUTH SUBNITRATE.—7s. 9d. to 8s. per lb.

BISMUTH NITRATE.—5s. 9d. to 6s. per lb.

BISMUTH OXIDE.—13s. 9d. to 14s. per lb.

BISMUTH SUBCHLORIDE.—11s. 9d. to 12s. per lb.

BISMUTH SUBGALLATE.—7s. 9d. to 8s. per lb. Extra and reduced prices for smaller and larger quantities respectively; Liquor Bismuthi B.P. in W. Qts. 1s. 1d. per lb.; 12 W. Qts. 1s. per lb.; 36 W. Qts. 11¼d. per lb.

BORAX B.P.—Crystal, £24 per ton; powder, £25 per ton. Carriage paid any station in Great Britain, in ton lots.

BROMIDES.—Potassium, 1s. 9¼d. to 2s. per lb.; sodium, 2s. 0½d. to 2s. 2d. per lb.; ammonium, 2s. 2½d. to 2s. 4d. per lb., all spot.

CALCIUM LACTATE.—1s. 3½d. to 1s. 4½d.

CHLORAL HYDRATE.—3s. 2d. to 3s. 5d. per lb., duty paid.

CHLOROFORM.—2s. 3d. to 2s. 7½d. per lb., according to quantity.

CREOSOTE CARBONATE.—6s. per lb.

ETHER METH.—1s. 1d. to 1s. 11½d. per lb., according to sp. gr. and quantity. Ether purif. (Aether B.P., 1914), 2s. 3d. to 2s. 4d., according to quantity.

FORMALDEHYDE.—£39 per ton, in barrels ex wharf.

GUAIACOL CARBONATE.—5s. per lb.

HEXAMINE.—2s. 4d. to 2s. 6d. per lb.

HOMATROPINE HYDROBROMIDE.—30s. per oz.

HYDRASTINE HYDROCHLORIDE.—English make offered at 120s. per oz.

HYDROGEN PEROXIDE (12 VOLS.).—1s. 4d. per gallon, f.o.r. makers' works, naked.

HYDROQUINONE.—4s. per lb., in cwt. lots.

HYPOPHOSPHITES.—Calcium, 3s. 6d. per lb., for 28-lb. lots; potassium, 4s. 1d. per lb.; sodium, 4s. per lb.

IRON AMMONIUM CITRATE B.P.—2s. 1d. to 2s. 4d. per lb. Green, 2s. 4d. to 2s. 9d. per lb. U.S.P., 2s. 2d. to 2s. 5d. per lb.

IRON PERCHLORIDE.—22s. per cwt., 112 lb. lots.

MAGNESIUM CARBONATE.—Light Commercial, £33 per ton net.

MAGNESIUM OXIDE.—Light commercial, £67 10s. per ton, less 2½%; Heavy Commercial, £22 per ton, less 2½%; in quantity lower; Heavy Pure, 2s. to 2s. 3d. per lb., in 1 cwt. lots.

MENTHOL.—A.B.R. recrystallised B.P., 18s. 3d. per lb. net; Synthetic, 11s. to 12s. per lb., according to quantity; 10s. 6d. for 1 cwt. lots and upwards; Liquid (95%), 12s. per lb.; Detached Cryst., 14s. 6d. per lb.

MERCURIALS B.P.—Up to 1 cwt. lots, Red Oxide, 7s. 6d. to 7s. 7d. per lb., levig., 7s. to 7s. 1d. per lb.; Corrosive Sublimate, Lump, 5s. 9d. to 5s. 10d. per lb., Powder, 5s. 2d. to 5s. 3d. per lb.; White Precipitate, Lump, 5s. 11d. to 6s. per lb., Powder, 6s. to 6s. 1d. per lb., Extra Fine, 6s. 1d. to 6s. 2d. per lb..; Calomel, 6s. 4d. to 6s. 5d. per lb.; Yellow Oxide, 6s. 10d. to 6s. 11d. per lb.; Persulph., B.P.C., 6s. 1d. to 6s. 2d. per lb.; Sulph. nig., 5s. 10d. to 5s. 11d. per lb. Special prices for larger quantities.

METHYL SALICYLATE.—1s. 9d. per lb.

METHYL SULPHONAL.—11s. per lb.

METOL.—11s. per lb. British make.

PARAFORMALDEHYDE.—1s. 9d. per lb. for 100% powder.

PARALDEHYDE.—1s. 4½d. per lb.

PHENACETIN.—3s. per lb.

PHENAZONE.—4s. 6d. per lb.

PHENOLPHTHALEIN.—6s. to 6s. 3d. per lb.

POTASSIUM BITARTRATE 99/100% (Cream of Tartar).—97s. per cwt. less 2½% for ton lots.

POTASSIUM CITRATE.—1s. 11d. to 2s. 2d. per lb.

POTASSIUM FERRICYANIDE.—1s. 9d. per lb., in cwt. lots.

POTASSIUM IODIDE.—16s. 8d. to 17s. 5d. per lb. for 1 cwt. lots.

POTASSIUM METABISULPHITE.—6d. per lb., 1-cwt. kegs included, f.o.r. London.

POTASSIUM PERMANGANATE.—B.P. crystals, 6d. per lb., spot.

QUININE SULPHATE.—2s. per oz., 1s. 8d. to 1s. 9d. for 1000 oz. lots in 100 oz. tins.

RESORCIN.—4s. per lb., spot.

SACCHARIN.—55s. per lb. Very limited inquiry.

SALOL.—2s. 4d. per lb.

SODIUM BENZOATE, B.P.—1s. 10d. to 2s. 2d. per lb.

SODIUM CITRATE, B.P.C., 1911.—1s. 8d. to 1s. 11d. per lb., B.P.C., 1923—2s. to 2s. 2d. per lb. for 1 cwt. lots. U.S.P., 1s. 11d. to 2s. 2d. per lb., according to quantity.

SODIUM FERROCYANIDE.—4d. per lb., carriage paid.

SODIUM HYPOSULPHITE, PHOTOGRAPHIC.—£15 5s. per ton, d/d consignee's station in 1-cwt. kegs.

SODIUM NITROPRUSSIDE.—16s. per lb.

SODIUM POTASSIUM TARTRATE (ROCHELLE SALT).—90s. to 95s. per cwt. Crystals, 5s. per cwt. extra.

SODIUM SALICYLATE.—Powder, 1s. 9d. to 1s. 10d. per lb. Crystal, 1s. 10d. to 1s. 11d. per lb.

SODIUM SULPHIDE, PURE RECRYSTALLISED.—10d. to 1s. 2d. per lb.

SODIUM SULPHITE, ANHYDROUS, £27 10s. to £28 10s. per ton, according to quantity; 1-cwt. kegs included.

SULPHONAL.—7s. 6d. per lb.

TARTAR EMETIC, B.P.—Crystal or powder, 2s. 1d. to 2s. 2d. per lb.

THYMOL.—Puriss., 11s. to 12s. 6d. per lb., according to quantity. Firmer. Natural, 14s. 9d. per lb. Cheaper.

Perfumery Chemicals

ACETOPHENONE.—7s. 3d. per lb.

AUBEPINE (EX ANETHOL), 10s. 6d. per lb.

AMYL ACETATE.—2s. per lb.

AMYL BUTYRATE.—5s. 3d. per lb.

AMYL SALICYLATE.—3s. per lb.

ANETHOL (M.P. 21/22° C.).—5s. 6d. per lb.

BENZYL ACETATE FROM CHLORINE-FREE BENZYL ALCOHOL.—2s. per lb.

BENZYL ALCOHOL FREE FROM CHLORINE.—2s. per lb.

BENZALDEHYDE FREE FROM CHLORINE.—2s. 6d. per lb.

BENZYL BENZOATE.—2s. 3d. per lb.

CINNAMIC ALDEHYDE NATURAL.—17s. per lb.

COUMARIN.—10s. 6d. per lb.

CITRONELLOL.—14s. 6d. per lb.

CITRAL.—8s. 3d. per lb.

ETHYL CINNAMATE.—10s. per lb.

ETHYL PHTHALATE.—2s. 9d. per lb.

EUGENOL.—9s. 6d. per lb.

GERANIOL (PALMAROSA).—17s. 6d. per lb.

GERANIOL.—6s. 6d. to 10s. per lb.

HELIOTROPINE.—4s. 9d. per lb.

ISO EUGENOL.—13s. 6d. per lb.

LINALOL.—Ex Bois de Rose, 15s. per lb. Ex Shui Oil, 10s. 6d. per lb.

LINALYL ACETATE.—Ex Bois de Rose, 18s. per lb. Ex Shui Oil, 14s. 6d. per lb.

METHYL ANTHRANILATE.—8s. 6d. per lb.

METHYL BENZOATE.—4s. 6d. per lb.

MUSK KETONE.—35s. per lb.

MUSK XYLOL.—8s. 6d. per lb.

NEROLIN.—3s. 9d. per lb.

PHENYL ETHYL ACETATE.—10s. 6d. per lb.

PHENYL ETHYL ALCOHOL.—11s. per lb.

RHODINOL.—27s. 6d. per lb.

SAFROL.—1s. 6d. per lb.

TERPINEOL.—1s. 6d. per lb.

VANILLIN.—18s. 6d. per lb. Good demand.

Essential Oils

ALMOND OIL.—10s. 3d. per lb.

ANISE OIL.—3s. 1d. per lb.

BERGAMOT OIL.—30s. per lb.

BOURBON GERANIUM OIL.—13s. per lb.

CAMPHOR OIL.—67s. 6d. per cwt.

CANANGA OIL, JAVA.—26s. per lb.

CINNAMON OIL LEAF.—6d. per oz.

CASSIA OIL, 80/85%.—8s. 6d. per lb.

CITRONELLA OIL.—Java, 85/90%, 2s. 1d. per lb. Ceylon, pure, 1s. 10d. per lb.

CLOVE OIL.—6s. per lb.

EUCALYPTUS OIL, 70/75%.—2s. per lb.

LAVENDER OIL.—Mont Blanc, 38/40%, Esters, 21s. per lb.

LEMON OIL.—9s. 6d. per lb.

LEMONGRASS OIL.—4s. 6d. per lb.

ORANGE OIL, SWEET.—10s. 6d. per lb.

OTTO OF ROSE OIL.—Anatolian, 30s. per oz. Bulgarian, 70s. per oz.

PALMA ROSA OIL.—9s. 6d. per lb.

PEPPERMINT OIL.—Wayne County, 17s. 6d. per lb. Japanese, 8s. 3d. per lb.

PETITGRAIN OIL.—7s. 9d. per lb.

SANDALWOOD OIL.—Mysore, 26s. 6d. per lb.; 90/95%, 16s. 6d. per lb.

London Chemical Market

The following notes on the London Chemical Market are specially supplied to THE CHEMICAL AGE *by Messrs. R. W. Greeff & Co., Ltd., and Messrs. Chas. Page & Co., Ltd., and may be accepted as representing these firms' independent and impartial opinions.*

London, May 4, 1927.

THE uptake of chemicals during the past week has been fairly satisfactory, and a larger volume of inquiry has been received for the bulk of the chemical products. Prices on the whole continue steady, and the outlook is considerably brighter. Export trade is reviving and inquiries are coming to hand more freely.

General Chemicals

ACETONE is extremely firm at about £61 to £63 per ton, store, free packages.

ACID ACETIC.—There is no change in the price, with a satisfactory home trade demand, and export trade improving.

ACID, CITRIC.—Continues firm, with inquiry increasing, spot price being about 1s. 4½d., less 5 per cent.

ACID FORMIC.—In fair demand at unchanged prices.

ACID LACTIC.—Steady and demand satisfactory, price for 50% by weight, technical, remaining at £43 per ton.

ACID OXALIC meets with a good demand, no change in the price.

ACID TARTARIC continues firm at 1s. 2½d. to 1s. 3d. per lb., and demand is increasing.

ALUMINA SULPHATE.—Demand not quite so heavy as recently, but price remains steady at £6 2s. 6d. to £6 5s. per ton, for 17/18% technical quality.

AMMONIUM CHLORIDE.—Demand rather disappointing, although no change in the price can be reported at £19 per ton.

COPPER SULPHATE.—Continues extremely active and scarce for near delivery. Price maintained at about £25 per ton, less 5 per cent.

CREAM OF TARTAR.—In increased demand, and price higher at £96 to £98 per ton for the B.P. quality.

EPSOM SALTS.—Firm and scarce for early delivery, spot price unchanged at about £5 5s. per ton.

FORMALDEHYDE.—Price continues firm at £41 to £43 per ton, with demand improving.

LEAD ACETATE has not been quite so active and price is slightly easier for spot, although the forward position is very firm, as makers appear to be fully occupied. Spot prices are about £44 to £45 per ton for white, and £42 10s. for brown.

METHYL ACETONE is in good request, and prices firm at £60 per ton

METHYL ALCOHOL.—No change to be reported.

POTASSIUM CHLORATE.—Price slightly easier, with demand good, especially on export account.

POTASSIUM PERMANGANATE.—Firm, and in rather short supply on the spot.

SODIUM ACETATE.—Export demand improving, and price firm at £18 5s. per ton.

SODIUM BICHROMATE.—A fair amount of business is passing, with continental material competing.

SODIUM HYPOSULPHITE.—Firm, with continental material advancing.

SODIUM PRUSSIATE.—Good business transacted, and price firm at 4½d. per lb.

SODIUM SULPHIDE.—Quiet, with continental material competing.

ZINC SULPHATE is firm at £13 10s. to £14 per ton, for standard quality.

Coal Tar Products

The condition of the coal tar product market is somewhat dull, and the prices of most coal tar products have a downward tendency.

90's BENZOL is quoted at 1s. 6½d. per gallon, on rails, and the market is weak for the motor quality, which can be bought at as low as 1s. 5½d. per gallon, on rails.

PURE BENZOL is worth about 1s. 10d. per gallon, on rails.

CREOSOTE OIL is weaker, although the price, at the moment, remains nominally at 7d. to 7¼d. per gallon, on rails in the North, while the price in London is from 8½d. to 8¾d. per gallon.

CRESYLIC ACID is very firm, the pale quality 97/99% being quoted at 2s. 2d. per gallon on rails, while the dark quality, 95/97% is worth about 2s. 1d. per gallon.

SOLVENT NAPHTHA is unchanged at 1s. 2d. per gallon, on rails.

HEAVY NAPHTHA is quoted at 1s. 2d. per gallon, on rails.

NAPHTHALENES are unchanged, the 76/78 quality being quoted at £8 5s. to £8 15s. per ton, while the 74/76 quality is worth £7 10s. to £8 per ton.

PITCH is unchanged. Its value remains at 70s. per ton to 75s. per ton, f.o.b. U.K. ports.

Latest Oil Prices

LONDON.—May 4.—LINSEED OIL firm and 10s. higher. Spot, £32 15s.; April, £31 12s. 6d.; May, £31 15s.; May-August, £32; September-December, £33 5s. RAPE OIL inactive. Crude, extracted, £44 10s.; technical, refined, naked, £46 10s., ex wharf. COTTON OIL firm and 5s. to 20s. higher. Refined, common, edible, £42; Egyptian, crude, £35 15s.; deodorised, £44. TURPENTINE firm. American, spot, 44s. 3d.; June, 44s. 9d.; and July-December, 46s. per cwt.

HULL.—May 4.—LINSEED OIL.—Naked, spot and May, £32 15s.; June-August, £33; September-December, £33 10s.; COTTON OIL.—Naked Bombay, crude, £34 10s.; Egyptian, crude, £36; edible refined, £39 10s.; technical, £37 5s.; deodorised, £41 10s. PALM KERNEL OIL.—Crushed, naked 5½ per cent., £38. GROUNDNUT OIL.—Crushed/extracted, £44; deodorised, £48. SOYA OIL.—Extracted and crushed, £34 10s.; deodorised, £38. RAPE OIL.—Crude extracted, £44; refined, £46 per ton, net cash terms, ex mill. CASTOR OIL and COD OIL unchanged.

Nitrogen Products

Export.—During the last week the sulphate of ammonia market has weakened a little on account of the usual seasonal falling off in the home demand, and British producers are now selling at £10 7s. 6d. per ton, f.o.b. U.K. port in single bags. The Continent are still purchasers for immediate consumption; the stocks there are being rapidly liquidated. On account of an expected drop in the general price of nitrogen there is little interest in the forward positions.

Home.—In certain parts of the country the home demand continues, although a distinct falling off is reported in the South of England. It is expected that the consumption for the year will be about equal to that of last year, although sulphate is selling at a lower price than last year, and some increase in consumption might well have been looked for. The bad weather during the early spring has upset these calculations. Moreover, merchants in certain parts of the country report that they have had to restrict their credits to farmers this year.

Nitrate of Soda.—The nitrate of soda position remains unchanged, with all eyes turned on Chile for the new season's price scale. In the meantime certain low speculative offers have appeared on the market, but with few purchasers. The stocks in Chile have almost reached a million tons, but stocks at ports near consuming points have been liquidated largely.

Calcium Cyanamide

A FAIR demand continues to be experienced for this fertiliser for use on root crops, and a good deal of interest is also being shown for the purpose of charlock destruction. As announced in our previous issue, the price for May is £9 16s. per ton for 4-ton lots, carriage paid to any railway station in Great Britain.

THE MOND NICKEL CO. has a plant at Coniston, Ontario, for the manufacture of sulphuric acid from the sulphur-bearing gases evolved in the bessemerising of the nickel-copper ore mined by the company. For many years the sulphur gases were merely roasted off and allowed to waste, but about two years ago, after lengthy investigation, a satisfactory process was devised and a plant was erected. Now it is proposed to double the capacity of the plant. Since waste gases only are used as materials, the costs of operation are such as to enable the producers to market first quality sulphuric acid at exceedingly low prices, and, as only a small part of the available gas supply is being used, the prospects of the company enjoying a steady and vigorous growth are very bright.

A SODIUM SULPHATE DEPOSIT near Palo on the Canadian National Railways transcontinental line west of Biggar, Saskatchewan, is being developed by the White Shore Chemical Co. of North Battleford, Saskatchewan, and a force of men is now engaged in cutting the salt. Two thousand tons were to be taken out this winter, and when a market has been established a modern plant will be installed. The company has 1,500 acres under lease, and hopes to increase this considerably. The Dominion Department of Mines has frequently called attention to the large deposits of natural Glauber's salt (sodium sulphate) occurring in the alkaline lakes of Western Canada, particularly in Saskatchewan. From a survey of the lakes which contain beds of this material, it has been estimated that there is a reserve in excess of one hundred million tons in Western Canada, available for development.

Scottish Chemical Market

The following notes on the Scottish Chemical Market are specially supplied to THE CHEMICAL AGE *by Messrs. Charles Tennant and Co., Ltd., Glasgow, and may be accepted as representing the firm's independent and impartial opinions.*

Glasgow, May 4, 1927.

THE heavy chemical market has been brighter during the first few days of the past week, good inquiry being received with a fair proportion for export. Prices show little or no change from those last recorded.

Industrial Chemicals

ACID ACETIC.—98/100%, £55 to £67 per ton, according to quantity and packing, c.i.f. U.K. ports; 80% pure, £37 10s. per ton, ex wharf; 80% technical, £37 10s. per ton, ex wharf.

ACID BORIC.—Crystal, granulated or small flakes, £34 per ton; powder, £36 per ton, packed in bags, carriage paid U.K. stations.

ACID CARBOLIC, ICE CRYSTALS.—Still in good demand, but price now steady at about 9¼d. per lb., f.o.b. U.K. ports.

ACID CITRIC, B.P. CRYSTALS.—British material quoted 1s. 5d. per lb., less 5% f.o.b. U.K. ports, but this price could probably be shaded. Continental still higher at about 1s. 5½d. per lb., less 5% c.i.f. U.K. ports.

ACID HYDROCHLORIC.—Usual steady demand. Arsenical quality, 4s. 9d. per carboy. Dearsenicated quality, 6s. 3d. per carboy, ex works.

ACID NITRIC, 80°.—Quoted £23 5s. per ton, ex station, full truck loads.

ACID OXALIC.—In good demand and price unchanged at about 2¾d. per lb., c.i.f. U.K. ports. Spot material on offer at 3d. per lb., ex store.

ACID SULPHURIC, 144°.—£3 12s. 6d. per ton; 168°, £7 per ton, ex works, full truck loads. Dearsenicated quality 20s. per ton more.

ACID TARTARIC, B.P. CRYSTALS.—Spot material on offer at 1s. 2½d. per lb., less 5%, ex store. Quoted 1s. 2¼d. per lb., less 5%, c.i.f. U.K. ports, prompt shipment.

ALUMINA SULPHATE, 17/18% IRON FREE.—Spot material quoted £5 12s. 6d. per ton, ex store. On offer for early delivery at £5 5s. per ton, c.i.f. U.K. ports.

ALUM POTASH.—Lump quality quoted £8 per ton, c.i.f. U.K. ports. Crystal powder, 5s. per ton less. Lump on spot, £9 per ton. Crystal powder, £8 10s. per ton, ex store.

AMMONIA ANHYDROUS.—Spot supplies now available at about 9½d. per lb., ex store, containers extra and returnable.

AMMONIA CARBONATE.—Lump, £37 per ton; powdered, £39 per ton, packed in 5 cwt. casks, delivered or f.o.b. U.K. ports.

AMMONIA LIQUID, 880°.—Unchanged at about 2½d. to 3d. per lb., delivered according to quantity.

AMMONIA MURIATE.—Grey galvanisers' crystals of English manufacture unchanged at about £23 to £24 per ton, ex station. Continental on offer at about £20 10s. per ton, c.i.f. U.K. ports. Fine white crystals quoted £18 5s. per ton, c.i.f. U.K. ports.

ARSENIC, WHITE POWDERED.—Inclined to be firmer. Now quoted £18 12s. 6d. per ton, ex wharf, prompt despatch from mines. Spot material quoted £19 10s. per ton, ex store.

BARIUM CARBONATE, 98/100%.—White powdered quality quoted £6 15s. per ton, c.i.f. U.K. ports.

BARIUM CHLORIDE, 98/100%.—Large white crystals on offer from the Continent at £7 12s. 6d. per ton, c.i.f. U.K. ports, packed in casks. Bags, 5s. per ton less. Spot material quoted £9 5s. per ton, ex store.

BARYTES.—English material unchanged at £5 5s. per ton, ex works. Continental quoted £5 per ton, c.i.f. U.K. ports.

BLEACHING POWDER.—Contract price to consumers, £8 per ton, ex station, minimum 4-ton lots. Spot material, 10s. per ton extra. Continental now quoted £7 10s. per ton, c.i.f. U.K. ports.

BORAX.—Granulated, £19 10s. per ton; crystals, £20 per ton; powder, £21 per ton, carriage paid U.K. ports.

CALCIUM CHLORIDE.—English manufacturers' prices, £5 to £5 5s. per ton, ex station. Continental on offer at £3 12s. 6d. per ton, c.i.f. U.K. ports.

COPPERAS, GREEN.—Unchanged at about £3 10s. per ton, f.o.r. works, or £4 12s. 6d. per ton, f.o.b. U.K. ports, for export.

COPPER, SULPHATE.—British material quoted £24 10s. per ton, f.o.b. U.K. ports. Continental rather dearer at £24 per ton, ex wharf.

FORMALDEHYDE, 40%.—Now offered from the Continent at £38 per ton, c.i.f. U.K. ports. Spot material available at £39 10s. per ton, ex store.

GLAUBER SALTS.—English material unchanged at £4 per ton, ex store or station. Continental now £2 17s. 6d. per ton, c.i.f. U.K. ports.

LEAD, RED.—Imported material now quoted £32 10s. per ton, ex store.

LEAD, WHITE.—On offer at about £32 15s. per ton, ex store.

LEAD, ACETATE.—White crystals quoted £42 15s. per ton, c.i.f. U.K. ports; brown, about £40 5s. per ton, c.i.f. U.K. ports; white crystals on spot quoted £44 5s. per ton, ex store.

MAGNESITE, GROUND CALCINED.—Quoted £8 10s. per ton, ex store, in moderate demand.

MAGNESIUM, CHLORIDE.—Quoted £6 6s. 6d. per ton, c.i.f. U.K. ports.

POTASH CAUSTIC, 88/92%.—Solid quality quoted £28 15s. per ton, c.i.f. U.K. ports, minimum 15-ton lots. Under 15-ton lots, £29 10s. per ton. Liquid, £15 per ton, minimum 15-ton lots. Under 15-ton lots, £15 7s. 6d. per ton, c.i.f. U.K. ports.

POTASSIUM BICHROMATE.—Unchanged at 4½d. per lb., delivered.

POTASSIUM CARBONATE.—96/98%, quoted £27 5s. per ton, ex wharf, early shipment. Spot material on offer at about £28 10s. per ton, ex store.

POTASSIUM CHLORATE.—Powdered quality on offer at £24 5s. per ton, c.i.f. U.K. ports. Spot material, £2 per ton extra.

POTASSIUM NITRATE.—Spot material on offer at £22 10s. per ton, ex store. Offered for prompt shipment from the Continent at about £21 per ton, c.i.f. U.K. ports.

POTASSIUM PERMANGANATE, B.P. CRYSTALS.—Quoted 6½d. per lb., ex store, spot delivery.

POTASSIUM PRUSSIATE (YELLOW).—In good demand and price unchanged at about 7½d. per lb., ex store, spot delivery. Offered from the Continent at 7¼d. per lb., c.i.f. U.K. ports.

SODA CAUSTIC.—Powder, 98/99%, £19 7s. 6d. per ton; 76/77%, £15 10s. per ton; 70/72%, £14 10s. per ton, carriage paid station, minimum 4-ton lots on contract. Spot material 10s. per ton extra.

SODIUM ACETATE.—English material quoted £22 5s. per ton, ex store. Some cheap continental lots on offer at about £18 5s. per ton, c.i.f. U.K. ports.

SODIUM BICARBONATE.—Refined recrystallised quality, £10 10s. per ton, ex quay or station. M.W. quality, 30s. per ton less.

SODIUM BICHROMATE.—Quoted 3¼d. per lb., delivered buyers' works.

SODIUM CARBONATE (SODA CRYSTALS).—£5 to £5 5s. per ton, ex quay or station; powder or pea quality, £1 7s. 6d. per ton more; alkali, 58%, £8 12s. 3d. per ton, ex quay or station.

SODIUM HYPOSULPHITE.—Large crystals of English manufacture quoted £9 10s. per ton, ex station, minimum 4-ton lots. Continental on offer at about £8 2s. 6d. per ton, ex wharf, prompt shipment.

SODIUM NITRATE.—Ordinary quality quoted £13 per ton, ex store. Refined quality, 5s. per ton extra.

SODIUM NITRITE 100%.—Spot material now quoted £20 5s. per ton, ex store.

SODIUM PRUSSIATE (YELLOW).—Offered for prompt shipment from the Continent at 4¼d. per lb., ex wharf. Spot material on offer at 4½d. per lb., ex store.

SODIUM SULPHATE (SALTCAKE).—Price for home consumption, £3 7s. 6d. per ton, ex works.

SODIUM SULPHIDE.—60/65% solid, £11 10s. per ton; broken £12 10s. per ton; cakes, £12 10s. per ton; flake, £14 5s. per ton; crystals, 31/34%, £7 15s. to £8 10s. per ton, according to quality, delivered buyers' works, minimum 4-ton lots on contract. Prices for spot delivery are 5s. and 2s. 6d. per ton extra for solid and crystals respectively. Offered from the Continent at about £9 7s. 6d. per ton, c.i.f. U.K. ports; broken, 15s. per ton extra.

SULPHUR.—Flowers, £12 10s. per ton; roll, £11 10s. per ton; rock, £11 10s. per ton; floristella, £10 10s. per ton; ground American, £9 5s. per ton; ex store, prices nominal.

ZINC CHLORIDE.—British material, 98/100%, quoted £24 15s. per ton, f.o.b. U.K. ports. 98/100%, solid on offer from the Continent at about £21 15s. per ton, c.i.f. U.K. ports; powdered, 20s. per ton extra.

ZINC SULPHATE.—Continental material on offer at about £10 10s. per ton, ex wharf.

NOTE.—The above prices are for bulk business and are not to be taken as applicable to small parcels.

A NEW CELLULOSE PRODUCTION PROCESS is reported to be undergoing investigation in research institutions in Norway, Sweden, and Finland. A new cooking process is involved, which may be used in the production of both sulphite and sulphate, and, in the case of sulphate, the production is practically independent of the use of coal as a fuel, about half of the combustible constituents of the wood being utilised. For Norwegian sulphate mills it is estimated the saving will be about 1,500,000 kroner annually on the fuel bill, while there will also be a saving in chemicals, increased proportion of pulp from the wood, and better quality.

Manchester Chemical Market

(From Our Own Correspondent.)

Manchester, May 5, 1927.

There has been a slight improvement in the volume of inquiry on the Manchester chemical market during the past week, and some sellers report a somewhat better demand for certain products. The aggregate business that is being done, however, is still of limited extent relatively, and any marked improvement in the situation must wait upon a definite change for the better in some of the consuming industries. The actual demand on this market for chemicals for shipment is still rather quiet, although there has been a fair number of inquiries.

Heavy Chemicals

Sulphide of sodium is in limited request and values, if anything, are easier, 60–65 per cent. concentrated solid being offered at £10 17s. 6d. to £11 per ton and the ordinary commercial quality at £8 10s. There is only a comparatively quiet call for prussiate of soda, but prices are about maintained at 4¼d. per lb. Caustic soda keeps firm and continues to move off in fair quantities, both for home use and for export, at from £14 10s. to £16 10s. per ton, according to quality. Phosphate of soda is in quiet demand at about £12 15s. per ton. Bichromate of soda meets with a moderate inquiry and there has been no change in price levels, 3⅜d. per lb. still being asked. Sales of Glauber salts continue quiet, with current offers of this material at round £3 2s. 6d. per ton. Saltcake is in moderate request and values are held at from £3 10s. to £3 12s. 6d. per ton. Hyposulphite of soda is in quiet demand, but at £15 10s. for photographic and £9 5s. per ton for commercial quality there has been little alteration in quotations. Nitrite of soda keeps steady at about £19 per ton and a moderate trade is being put through. Alkali is firm and in fairly steady demand at £6 15s. per ton. Chlorate of soda is about unchanged on the week at 3d. per lb., but business in this section is far from brisk. Bleaching powder is in moderate request with makers' prices still at £8 per ton. Bicarbonate of soda is maintained at about £10 10s. per ton and the demand for this is on quietly steady lines.

There is still only a comparatively quiet demand for chlorate of potash, values of which are round 3¼d. per lb. Yellow prussiate of potash is rather slow, but offers are still being made at about 7¼d. per lb. The demand for caustic potash and carbonate of potash continues on a fair scale and quotations are steady at £30 10s. and £26 15s. per ton respectively. Bichromate of potash is in moderate request and current quotations range from 4⅛d. to 4¼d. per lb. There is still only a quiet business passing in permanganate of potash, but prices show little change, B.P. quality being quoted at about 6d. per lb. and the commercial material at 5d. to 5¼d. per lb.

The tendency in the case of arsenic is still easy, although prices show little further change compared with last week, from £16 to £16 5s. per ton at the mines being quoted for white powdered, Cornish makes; a moderate demand for this material has been reported. Sulphate of copper is in steady request and prices remain very firm at from £25 to £25 10s. per ton. Acetate of lead is moving off slowly, but at about £43 10s. per ton for white and £41 15s. for brown there has been no further change compared with last week. Nitrate of lead is also maintained at £39 per ton, although the demand for this is quiet. Acetate of lime continues to attract only a limited amount of buying interest, with grey quoted at £15 10s. and brown at about £8 15s.

Acids and Tar Products

Although there is only a quiet demand for citric acid, this product is a very firm section, and current values are from 1s. 5d. to 1s. 5¼d. per lb. Tartaric acid keeps steady at about 1s. 2½d. per lb., with a moderate demand reported. Oxalic acid continues quiet, but about unchanged on the week at 3d. per lb. A quietly steady business is being done in acetic acid, and values are fully maintained at round £37 per ton for 80 per cent. commercial quality and £67 for glacial.

Current offers of pitch are round £3 12s. 6d. to £3 15s. per ton, but there is only a quiet demand again reported this week. Creosote oil keeps steady at about 7¼d. per gallon, and a fair inquiry for this is circulating. Crystal carbolic acid is rather quieter than it has been recently, and about 8½d. per lb. is now being quoted. Solvent naphtha remains slow and weak at round 1s. 4½d. per gallon.

Rubber Specifications and Performance Tests

A paper on "Specifications for Rubber Goods and the Value of Performance Tests," by J. M. Beirer and C. C. Davies, of the Boston Woven Hose and Rubber Co., Cambridge, Massachusetts, was read by J. M. Beirer at a meeting of the London and district section of the Institution of the Rubber Industry on Monday evening.

The speaker dealt with the various performance or utility tests which enabled manufacturers to foresee the performance of rubber goods in use, and discussed abrasion and flexing machines and various heat and other A.G. tests now available. The great strides made in the manufacture of rubber in connection with the use of accelerators, reinforcing agents and anti-oxidants were given prominence, and these factors were shown to have special significance with regard to rubber specifications. Broadly speaking, however, it could be said that specifications had not been brought into consonance with the revolutionary character of improvements made in the manufacture of rubber. Specifications were often more faulty now than they were twenty years ago, and in some cases were even absurd. The need for performance tests was obvious, but if they were merely added to present specifications, the situation would be aggravated, for consumers would be paying a premium for inferior goods and would misuse and misinterpret performance tests as they did the present tests. The trouble lay at the doors of three parties, the manufacturers, the consumers' specification departments, and the higher executives of these departments. The lecturer thought they could be overcome by more centralised organisation and co-operation between the three parties.

Although the lecturer made it clear he was referring only to American conditions, the chairman, Dr. P. Schidrowitz, said he thought that the British should not take up a Pharisaic attitude and say "We are not as other men."

Primary Decomposition of Coal

The Department of Scientific and Industrial Research has issued Fuel Research Paper No. 16, on "The Primary Decomposition of Coal. 1. Temperature of Initial Decomposition," by Dr. J. G. King and Mr. R. E. Willgress (London: H.M. Stationery Office, pp. 19, 9d.). As a result of the investigations carried out, it has been shown that coal, when carefully heated out of contact with free oxygen, decomposes to produce visible amounts of liquid oils at temperatures varying from 180° C. for peat to 215° to 245° C. for bituminous coals. This decomposition continues for some hours at least if the coal is maintained at the initial temperature. With bituminous coals the temperature of initial decomposition appears to increase with increasing oxygen content and decreasing carbon content. Coal is a mixture of many constituents, and the real reason for this generalisation has not yet been established. The evolution of water from coal in the absence of air is a gradual process, but with certain coals there are temperatures at which the rate of evolution is accelerated. With bituminous coals the first acceleration of moisture evolution coincides with the appearance of oil vapour.

Sequel to Paint Works Explosion

There was a sequel to the bursting, in February, 1926, of a centrifugal paint strainer at the works of Jenson and Nicholson, Ltd., of Stratford, at Bow County Court on Monday, when two applications were made under the Workmen's Compensation Act. In the one case, the applicant, Robert William Christopher Thomas, resident engineer of the company, stated he had been paid 30s. a week till March 4 this year, when it was suggested he was fit to resume work, but was unable to do so. An award of 30s. a week total incapacity was made in favour of the applicant. In the case of Charles Augustus Thomas, the applicant stated that he had been paid 30s. a week to March 4, and was then offered suitable work at half his ordinary wages and £1 4s. 2d. compensation, as half his lost wages. The applicant was advised that he should have accepted this offer and was awarded £1 4s. 2d. from March 4, the respondent company to employ him in future at half wages and £1 4s. 2d.

Company News

AMERICAN SMELTING AND REFINING CO.—A quarterly dividend of 2 per cent. on the common stock was payable on May 2 to the shareholders of record on April 14.

DUBARRY PERFUMERY CO.—For the year 1926 the net profit was £56,720, against £45,279 for the previous year. A balance of £4,757 is carried forward, against £6,857 brought in.

LAUTARO NITRATE CO., LTD.—The net profit for the year to December 31 last is £75,857, in contrast with £1,048,519 for 1925, a fall of £972,662. A balance of £440,514 is to be carried forward, no recommendation of a final distribution being made.

NITRATE RAILWAYS CO., LTD.—The ordinary general meeting of the company will be held at Winchester House, Old Broad Street, London, on May 10, at 12 noon, to receive the directors' report and accounts for the year 1926, to declare a dividend, to confirm the election of a director, to elect directors in place of those retiring by rotation, to elect auditors, and to transact the ordinary business of the company.

NOBEL INDUSTRIES, LTD.—The results for 1926 enable the directors to declare, in respect of the year ended December 31, 1926, a further dividend on the ordinary shares of 12 per cent., less income tax at 4s. in the £, making, with the dividend paid on January 1, 1927, 15 per cent. for the year, and a dividend on the deferred shares of 10 per cent., less income tax at 4s. in the £. Last year the ordinaries received a total of 10 per cent. and dividends were resumed on the deferred, after a lapse of several years, with a payment of 5 per cent.

BRYANT AND MAY (BRAZIL), LTD.—For the first financial period from March 23, 1926, the date of incorporation, to March 31, 1927, the report states that the profits amount to £66,463. From this have to be deducted dividends amounting to 7 per cent., free of income-tax, paid upon the preference shares, absorbing £24,500. Out of the balance of £41,963, the directors have reserved for income-tax £13,500, and recommend writing off preliminary expenses £6,000, and the payment of a dividend of 6 per cent., free of income-tax, upon the ordinary shares, carrying forward £7,463.

Chemical Trade Inquiries

The following inquiries, abstracted from the "Board of Trade Journal," have been received at the Department of Overseas Trade (Development and Intelligence), 35, Old Queen Street, London, S.W.1. British firms may obtain the names and addresses of the inquirers by applying to the Department (quoting the reference number and country), except where otherwise stated.

ALKALOIDS, PHARMACEUTICAL CHEMICALS, ETC.—An agent in Vienna desires to secure the representation of British manufacturers. (Reference No. 439.)

ALL CLASSES OF VEGETABLE, MINERAL, AND ANIMAL OILS AND FATS, OIL-SEEDS, OIL-CAKES, FISH-MEAL, WAXES, ETC.—An agent in Hamburg wishes to represent British firms on a commission basis. (Reference No. 447.)

PRINTING INKS AND DYES, ETC.—A Greek firm in Athens desire to obtain the sole representation for the Athens-Piræus district of British manufacturers. (Reference No. 450.)

LEATHER AND TANNERY CHEMICALS, ETC.—An agent in Warsaw desires to obtain the representation of British manufacturers. (Reference No. 452.)

PHARMACEUTICAL CHEMICALS, ETC.—A well-established commission agent in Barcelona, of good standing, wishes to obtain the representation of British manufacturers. (Reference No. 456.)

COAL TAR PRODUCTS.—A firm of factors in coal tar products at San Francisco is desirous of securing shipments of the following products from the United Kingdom to California during 1927:—Creosote oils, coal tar, coal tar pitch, tar acid, coke, cresylic acid, solvent naphtha and benzol. The firm desire also an agency in these products, financing their own stocks. (Reference No. 464.)

Oil from Coal: I.C.I. Activities

ACCORDING to a statement in the *Daily News*, Imperial Chemical Industries is concentrating on the transformation of coal into oil. An experimental works costing £150,000 is contemplated, the site of its erection being probably somewhere in Lancashire. No details of the method to be tried out are available, but (says the statement) it is assumed that the combine is more interested in the liquefaction of coal (by hydrogenation) than in low temperature carbonisation.

New Chemical Trade Marks

Applications for Registration

This list has been specially compiled for us by Gee & Co., Patent and Trade Mark Agents, Staple House, 51 and 52, Chancery Lane, London, W.C.2, from whom further information may be obtained, and to whom we have arranged to refer any inquiries relating to Patents, Trade Marks and Designs.

Opposition to the Registration of the following Trade Marks can be lodged up to May 27, 1927.

"RADIOSTOL."

Class 3. Chemical substances prepared for use in medicine and pharmacy. The British Drug Houses, Ltd., 16–30, Graham Street, City Road, London, N.1, wholesale druggists. February 17, 1927. (To be Associated. Sect. 24.)

"OPACIN."

478,478. Class 3. Chemical substances prepared for use in medicine and pharmacy. May and Baker, Ltd., Garden Wharf, Church Road, Battersea, London, S.W.11, manufacturers. March 4, 1927.

"OXYCARNOL."

478,289. Class 1. Chemical substances for use in the dyeing industry. H. Th. Bohme Aktiengesellschaft (a joint stock company organised under the laws of Germany), 29, Moritzstrasse, Chemnitz, Germany; manufacturers. February 28, 1927. (To be Associated. Sect. 24.)

"LANACLARIN."

478,591. Class 1. Chemical substances for use in the dyeing industry. March 8, 1927. For further particulars, see above, No. 478,289.

Tariff Changes

AUSTRALIA.—A recent Proclamation prohibits the importation into the Commonwealth of Australia of all synthetic organic dyestuffs, colours and colouring matter used in the manufacture of such materials, other than of British origin, unless the consent in writing of the Minister for Trade and Customs has first been obtained. This Proclamation revokes that issued in 1919.

NORWAY.—The Norwegian Ministry of Finance and Customs has been authorised to permit the importation into Norway, free of Customs duty, of combed artificial silk for the manufacture of mixed wool and artificial silk yarns, subject to conditions laid down by the Ministry.

DENMARK.—A law passed recently prolongs the amendments of 1926 to the Customs law, including Law 307, which was introduced in favour of textile mills, a lower duty on raw and artificial silks, silk yarn and worsted tissues, and Customs exemption for textile machinery and for yarn wastes and admixtures. The present law continues the favourable treatment and further exempts raw and artificial silk from a Customs surtax of 10 per cent. enforced in connection with currency stabilisation.

SYRIA AND LEBANON.—By a recent decree Customs duties on potable spirits of a strength up to 60 centesimal degrees are unaltered, but that on spirit (*esprit ou alcool*) of any make containing more than 60 degrees of alcohol is increased to 300 per cent. *ad valorem*.

Annual Meeting of English China Clays

AT the meeting of English China Clays, Ltd., held on Tuesday, April 26, in London, Mr. Martin (chairman and managing director), who presided, said that in view of the adverse circumstances which had prevailed the board were agreeably surprised at being able to submit so satisfactory a result of the year's working. Their trade had been well maintained. Improvements and extensions had taken place at the various works of the company, and within a short time practically the whole of the uneconomical plant would have been eliminated and the works equipped with up-to-date machinery. He referred to the acquisition of the whole of the shares of the North Goonbarrow China Clay Co., Ltd., and stated that the directors were satisfied that it would prove a great asset. The import duty on translucent pottery would, he thought, give a great fillip to the home pottery trade.

Details of the report of the company were given in THE CHEMICAL AGE for April 23, p. 408.

Commercial Intelligence

The following are taken from printed reports, but we cannot be responsible for any errors that may occur.

County Court Judgment

[NOTE.—The publication of extracts from the "Registry of County Court Judgments" does not imply inability to pay on the part of the persons named. Many of the judgments may have been settled between the parties or paid. Registered judgments are not necessarily for debts. They may be for damages or otherwise, and the result of bona-fide contested actions. But the Registry makes no distinction of the cases. Judgments are not returned to the Registry if satisfied in the Court books within twenty-one days. When a debtor has made arrangements with his creditors we do not report subsequent County Court judgments against him.]

TAYLOR, J. J., AND CO., 3, Seddon Street, Liverpool, paint manufacturers. (C.C., 7/5/27.) £25 15s. 4d. February 18.

Mortgages and Charges

*[NOTE.—The Companies Consolidation Act of 1908 provides that every Mortgage or Charge, as described therein, shall be registered within 21 days after its creation, otherwise it shall be void against the liquidator and any creditor. The Act also provides that every Company shall, in making its Annual Summary, specify the total amount of debts due from the Company in respect of all Mortgages or Charges. The following Mortgages and Charges have been so registered. In each case the total debt, as specified in the last available Annual Summary, is also given—marked with an *—followed by the date of the Summary, but such total may have been reduced.]*

GRAYS DYES AND COLOURS, LTD. (M., 7/5/27.) Registered April 21, £3,000 debenture and bonus of 2 per cent. and £4,000 debenture and bonus of 2 per cent., to A. Hirst, 10, Talbot Avenue, Edgerton, Huddersfield, woollen manufacturer; general charge. *£15,000. September 15, 1926.

HATTON (W. R.) AND SONS, LTD., London, W., starch manufacturers. (M., 7/5/27.) Registered April 14, Land Registry charge, to bank; charged on 11A and 11 to 21, Snarsgate Street and 310 to 318 (even) Latimer Road, Kensington. *Nil. March 11, 1927.

Satisfaction

SANKEY (JOHN) AND SON, LTD., Manchester, soap manufacturers. (M.S., 7/5/27.) Satisfaction registered April 14, all moneys, etc., registered February 10, 1927.

Receiverships

GRUNDY (R. E.) AND CO. (1924), LTD. (R., 7/5/27.) G. F. Grimshaw, of 3, Mount Street, Manchester, was appointed receiver on April 12, 1927, under powers contained in debenture dated February 6, 1925.

TRIUMPH SOAP CO., LTD. (R., 7/5/27.) R. Henderson, of 19, Beer Lane, E.C.3, was appointed receiver and manager on April 22, 1927, under powers contained in a second mortgage debenture dated December 15, 1919. A. F. S. Cooper, of Albert Works, Chatsworth Road, Stratford, E.15, ceased to act in the above capacities on April 22, 1927.

London Gazette, &c.

Partnership Dissolved

ACTO PRODUCTS (Robert Agnew ROBERTSON and James Joseph O'KEEFE), manufacturers of cleansing products, West Lodge Works, Ealing Green, Middlesex, as from March 17, 1927, by mutual consent.

New Companies Registered

ANTIS, LTD., 11, John Street, Bedford Row, London, W.C.1. Registered May 2. Nom. capital, £400 in 5s. shares. To adopt an agreement with Major R. E. F. Wyndham, B.Sc., and Mrs. G. A. Wyndham, to develop and turn to account the business of the Antis Manufacturing Co. referred to in the said agreement, and to carry on business as pharmaceutical, agricultural, manufacturing, wholesale, retail and general chemists and druggists, manufacturers of and dealers in disinfectants, insecticides, paints, polishes, perfumes, etc. Directors: Margaret E. R. Douglas, Major R. E. F. Wyndham, L. Beesley.

BONCAR, LTD.—Registered April 26. Nom. capital, £250 in 1s. shares. To acquire any patents relating to the manufacture of carbon or any allied substance or to the construction of furnaces, and to carry on the business of manufacturers of and dealers in carbon and allied substances, chemical manufacturers and dealers, etc. Directors: R. Machin, 60, Burton Court, Chelsea, London, S.W., G. Moore, A. H. Bonnard.

THE OCEAN PETROLEUM CO., LTD., Salisbury House, London Wall, London, E.C.2. Registered as a "private" company on April 30. Nom. capital, £100,000 in £1 shares. To adopt agreements (1) with the North American Car Corporation, and (2) with Burt, Boulton and Haywood, Ltd., and to carry on the business of importers, sellers and distributors of crude and refined oils, benzol and all products or by-products of oil and petroleum, etc. Directors: C. B. Haywood, The Rt. Hon. The Earl of Dunmore, H. H. Brigham, Major H. Nicholson.

Voluntary Liquidation of Manufacturing Chemists

IN pursuance of the provisions of the Companies (Consolidation) Act, a meeting of the creditors of Davies, Sons and Co. (Derby), Ltd., manufacturing chemists and druggists, Derby, was held on Friday, April 29, at the offices of the liquidator, Mr. A. G. Mellors, 1, King John's Chambers, Bridlesmithgate, Nottingham. It was reported that the company was incorporated on June 24, 1918, with a nominal capital of £10,000, of which 1,801 preference shares of £1 each and 2,601 ordinary share of £1 each had been issued as fully paid. First mortgage debentures for £3,500 were issued to the bank and second mortgage debentures for £800 and £600 were also created. It appeared that the directors of the company were Messrs. W. A. Davies, W. T. Davies, and S. Buxton. Mr. Buxton managed the concern until about twelve months ago, when he resigned. In consequence of loss on trading and falling off of trade, endeavours were then made to sell the business. The debenture holders appointed a receiver on January 14 last in the person of Mr. A. G. Mellors. He continued the business for a time and eventually disposed of the concern for £5,000. The net assets were £2,723. The unsecured creditors amounted to £856, so that there was a surplus as regarded the creditors of £1,867. At the date of the appointment of the receiver, the amount due to the first debenture holders (the bank) was £3,300. It was decided to confirm the voluntary liquidation of the company, with Mr. Mellors as liquidator.

New Source of Synthetic Petroleum

A REPORT from Oslo states that samples of Svalbard coal, sent to the Badische works for testing, have given such satisfactory results that plans have now been prepared for the erection of a large plant at King's Bay for the production of synthetic petroleum. It will probably take two or three years before the plant will be in operation, and, meanwhile, investigations are being made as to the extent of the coal layers in the King's Bay district.

Benn Brothers' Other Journals

THE CABINET MAKER.—Notes from the Home Journals; Hire Traders' Protection Association Dinner; Basket Makers' Dinner; Better Leather Craft; New Books.

THE ELECTRICIAN.—Electricity Supply in South Wales; "The Electricity Industry in Japan," by W. Buchler; The Case for a National Code of Wiring Practice; Electricity in Sugar Beet Factories.

THE FRUIT GROWER.—Our Day at the Imperial Fruit Show; Late April Frost Damage; Marketing of Canadian Fruit.

GARDENING ILLUSTRATED.—Truro Spring Show; Fruit Tree Spraying; The Scent of Musk Roses; Potting Chrysanthemums; Arranging the Herbaceous Border; Annual Larkspurs: A Plea for their wider cultivation.

THE GAS WORLD.—Cartoon by Wallace Coop; Monthly By-Product Coking Section.

THE HARDWARE TRADE JOURNAL.—Household Appliances: The Right Approach to the User; Merchandise Marks: Iron and Steel Inquiry; Summer Hardware: New Picnic Outfits; Garden Furnishing and Travelling Requisites; Motor Transport Costs Analysed.

THE TIMBER TRADES JOURNAL.—Future Homes of England; Saturation of Deck Timber; The Collection of Wood Refuse.